Reregistration Eligibility Decision (RED) for Dichlorprop-p (2,4-DP-p)

August 29, 2007

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Environmental Protection
Agency

Prevention, Pesticides
and Toxic Substances
(7508P)

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Reregistration Eligibility Decision for Dichlorprop-p (2,4-DP-p)

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List A

Case No. 0294

Approved by: _____

Date: Aug 29, 2007

Steven Bradbury, PhD., Director
Special Review and Reregistration Division

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EPA 2,4-DP-p Team

Ecological Fate and Effects Division
Marie Janson
Thuy Nguyen
James Lin

Health Effects Division
Paul Chin
Toiya Goodlow
Matthew Lloyd
Elizabeth Méndez
Debbie Smegal

Registration Division
Joanne Miller
Eugene Wilson

Special Review and Reregistration Division
Kevin Costello
Rosanna Louie
Patricia Moe

Biological Economics and Analysis Division
Jenna Carter
Steve Jarboe
Andrew Lee
Bill Phillips
Sunil Ratnayake
Elisa Rim

U.S. Department of Agriculture
Harold Coble

Glossary of Terms and Abbreviations

ae	Acid Equivalent
ai	Active Ingredient
CFR	Code of Federal Regulations
CSF	Confidential Statement of Formula
DCI	Data Call-In
EDWC	Estimated Drinking Water Concentration
EEC	Estimated Environmental Concentration
EPA	Environmental Protection Agency
EUP	End-Use Product
FDA	Food and Drug Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FFDCA	Federal Food, Drug, and Cosmetic Act
FQPA	Food Quality Protection Act
GENEEC	Tier I Surface Water Computer Model (Estimated Aquatic Environmental Concentrations)
LC_{50}	Median Lethal Concentration. A statistically derived concentration of a substance that can be expected to cause death in 50% of test animals. It is usually expressed as the weight of substance per weight or volume of water, air or feed, e.g., mg/l, mg/kg or ppm.
LD_{50}	Median Lethal Dose. A statistically derived single dose that can be expected to cause death in 50% of the test animals when administered by the route indicated (oral, dermal, inhalation). It is expressed as a weight of substance per unit weight of animal, e.g., mg/kg.
LOC	Level of Concern
LOAEL	Lowest Observed Adverse Effect Level
mg/kg/day	Milligram Per Kilogram Per Day
mg/L	Milligrams Per Liter
MRID	Master Record Identification (number). EPA's system of recording and tracking studies submitted.
MUP	Manufacturing-Use Product
N/A	Not Applicable
NOAEL	No Observed Adverse Effect Level
OPP	EPA Office of Pesticide Programs
ppb	Parts per Billion
PPE	Personal Protective Equipment
ppm	Parts per Million
RED	Reregistration Eligibility Decision
REI	Restricted Entry Interval
RQ	Risk Quotient
TGAI	Technical Grade Active Ingredient
UV	Ultraviolet
WPS	Worker Protection Standard

I. Introduction

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) was amended in 1988 to accelerate the reregistration of products with active ingredients registered prior to November 1, 1984. The amended Act calls for the development and submission of data to support the reregistration of an active ingredient, as well as a review of all submitted data by the U.S. Environmental Protection Agency (referred to as EPA or "the Agency"). Reregistration involves a thorough review of the scientific database underlying a pesticide's registration. The purpose of the Agency's review is to reassess the potential risks arising from the currently registered uses of the pesticide, to determine the need for additional data on health and environmental effects, and to determine whether or not the pesticide meets the "no unreasonable adverse effects" criterion of FIFRA.

This document summarizes EPA's human health and ecological risk assessments and reregistration eligibility decision (RED) for dichlorprop-p (2,4-DP-p), in the form of 2,4-DP-p acid, 2,4-DP-p dimethylamine salt (2,4-DP-p DMAS), and 2,4-DP-p EHE. Because it is expected for these forms of 2,4-DP-p to quickly dissociate to the 2,4-DP-p acid, 2,4-DP-p will represent the acid form throughout this document. The document consists of six sections. Section I contains the regulatory framework for reregistration; Section II provides an overview of the chemical and a profile of its use and usage; Section III gives an overview of the human health and environmental effects risk assessments; Section IV presents the Agency's decision on reregistration eligibility and risk management; and Section V summarizes the label changes necessary to implement the risk mitigation measures outlined in Section IV. Finally, the Appendices list related information, supporting documents, and studies evaluated for the reregistration decision. The risk assessments for 2,4-DP-p and all other supporting documents are available in the Office of Pesticide Programs (OPP) public docket at www.regulations.gov under docket number EPA-HQ-OPP-2006-0944.

II. Chemical Overview

A. Regulatory History

A Registration Standard Guidance Document was issued in December 1988 on dichlorprop acid, its salts, and ester forms, which summarized the regulatory conclusions based on available data, and specified the additional data required for reregistration purposes. The dichlorprop case (0294) includes several forms of 2,4-DP-p, of which only three forms are being supported for reregistration. The technical registrants, A.H. Marks and Company Limited, NuFarm UK Limited, and NuFarm Americas Incorporated, formed the 2,4-DP-p Task Force to produce data needed for the reregistration review of 2,4-DP-p.

Originally registered as an herbicide in the 1960s, the composition was a 50:50 ratio mixture of the dextro and levo (or R and S, respectively) isomers of 2,4-DP. Subsequently, the dextro isomer was identified as the herbicidally active isomer, but no economic route was available to produce only the dextro isomer. In the 1980s, technologies were developed to produce the single enriched isomer form, 2,4-DP-p, on a commercial scale, which achieved approximately 93-95% purity of 2,4-DP-p. Thus, the 2,4-DP-p Task Force agreed to develop data to fulfill guideline requirements for reregistration based on the enriched isomer, 2,4-DP-p. Subsequently, data submissions have been received and evaluated since the Registration Standard Guidance Document was published.

In 1996, the technical manufacturers began to obtain EPA registrations for technical 2,4-DP-p. Gradually, some end-use product (EUP) registrants began converting their formulations from the older racemic form to the single enriched isomer compositions. In September 2006, the Agency presented options to EUP registrants producing formulations that contained the racemic dichlorprop: 1) convert their product formulations to contain the enriched isomer, 2,4-DP-p; 2) produce data supporting the racemic dichlorprop; or 3) submit voluntary cancellations for products they no longer wish to support. As of January 2007, EPA received voluntary cancellations or commitments to convert product formulations to the enriched isomer, 2,4-DP-p, for all products. Most products have been reformulated to the enriched isomer formulation and all reformulations are anticipated to be completed by the Fall of 2007. Table 1 lists all forms of 2,4-DP-p included as part of the case and identifies active ingredients the 2,4-DP-p Task Force is supporting.

Table 1. Summary of Dichlorprop Active Ingredients, Case No. 0294				
PC Code	CAS #	Name	Task Force Supported	Active Registrations
031401	120-36-5	Dichlorprop, 2,4-DP	No	No
031402	15165-67-0	Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-	Yes	Yes
031403	104786-87-0	Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-, compd. with N-methylmethanamine (1:1)	Yes	Yes
031416	84731-66-8	2,4-DP, Diethanolamine salt	No	No
031419	53404-32-3	Dimethylamine 2-(2,4-dichlorophenoxy)propionate	No	Yes*
031453	53404-31-2	Butoxyethyl 2-(2,4-dichlorophenoxy)propionate	No	No
031463	28631-35-8	Isooctyl 2-(2,4-dichlorophenoxy)propionate	No	No
031465	865363-39-9	2-Ethylhexyl (R)-2-(2,4-dichlorophenoxy)propionate	Yes	Yes

*This indicates that product labels are currently transitioning from 2,4-DP to 2,4-DP-p as the active ingredient.

On December 3, 1986, EPA issued preliminary notification for Special Review of 2,4-DP because of its similarity to 2,4-D. At that time, there were concerns for possible epidemiological links of 2,4-D, 2,4-DB, and 2,4-DP to non-Hodgkin's lymphoma from both occupational and residential exposure. A proposed decision Not to Initiate Special Review was published on March 23, 1988 (53 FR 990; FRL-3353-3) based on the findings that such a link is not supported by the existing data. In 1992, a Science Advisory Board/Scientific Advisory Panel Special Joint Committee concluded that "the data are not sufficient to conclude that there is a cause and effect relationship between exposure to 2,4-D and non-Hodgkin's lymphoma." Subsequently, 2,4-D was classified as a Group D, "not classifiable as to human carcinogenicity." EPA then requested further histopathological examinations of mouse and rat tissue from previously conducted studies and reviewed epidemiological studies in January 2004 and December 2004, which further supported this classification. Thus, the Agency made a final decision not to initiate a Special Review of 2,4-DP (August 8, 2007 *Federal Register* Notice titled "2,4-D, 2,4-DP, and 2,4-DB; Decision Not to Initiate Special Review" [72 FR 44510-44511]).

B. Chemical Identification

2,4-DP-p compounds are plant growth regulators that are part of the chlorophenoxy group of herbicides. Chemical information and structures for technical 2,4-DP-p and its salts that are being supported are presented in Table 2. Table 3 presents the specific physical properties of 2,4-DP-p acid.

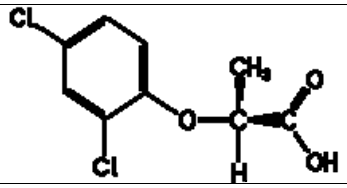
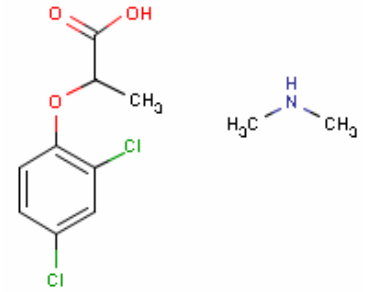
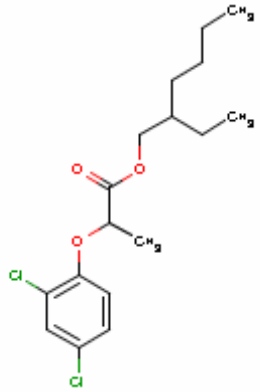
Table 2. 2,4-DP-p Chemical Information and Structures				
Compound Name	PC Code	CAS Number	Molecular Weight	Structure
2,4-DP-p	031402	15165-67-0	235.1 g/mol	
2,4-DP-p DMAS	031403	104786-87-0	280.2 g/mol	
2,4-DP-p EHE	031465	865363-39-9	347.3 g/mol	

Table 3. Physical and Chemical Properties of 2,4-DP-p acid.	
Parameter	Value and Unit
Chemical Name	2-(2,4-dichlorophenoxy) propionic acid
CAS Number	15165-67-0
Empirical Formula	$C_9H_8Cl_2O_3$
Molecular Weight	235.1 g/mole
Appearance	White solid with a strong, naphthalene-like odor
Melting Point	116 - 120 ºC
Vapor pressure (20 ºC)	4.65 x 10^{-7} mm Hg at 20 ºC; 1.35 x 10-6 at 25 ºC
Water Solubility (20 ºC)	729 mg/L at 20 ºC; 864.8 mg/L at 25 ºC

C. Use Profile

Dichlorprop-p (2,4-DP-p) is a member of the chlorophenoxy class of herbicides. It is the enriched isomer form (R isomer) and all technical product registrations now contain 93-95% purity 2,4-DP-p as the active ingredient. At the present, the 2,4-DP-p Task Force is supporting 2,4-DP-p acid, 2,4-DP-p dimethylamine salt (2,4-DP-p DMAS), and 2,4-DP-p ethylhexyl ester

(2,4-DP-p EHE). Henceforth, 2,4-DP-p will be used to represent all three forms unless otherwise stated in this document.

Type of Pesticide:	Herbicide
Target Pests:	Annual and perennial broadleaf weeds, brush.
Mode of Action:	2,4-DP-p is thought to increase cell-wall plasticity, biosynthesis of proteins, and the production of ethylene. The abnormal increase in these processes result in abnormal and excessive cell division and growth, damaging vascular tissue. The most susceptible tissues are those that are undergoing active cell division and growth.
Use Sites:	Ornamental lawns, recreational turf, sports fields, sod farms, roadsides, industrial sites, rights-of-way, and forests.
Use Classification:	General Use
Formulation Types:	*Acid* - granular, emulsifiable concentrate, water-soluble concentrate dry, wettable powder. *DMAS* - granular, water-soluble concentrate liquid, water-soluble concentrate dry. *EHE* - emulsifiable concentrate, soluble concentrate, Ready-to-Use solution.
Application Methods:	Aerial (no longer supported by the 2,4-DP-p Task Force), boom sprayers, handheld nozzle or wand sprayers, knapsack sprayers, and granular spreaders.
Application Rates:	Maximum application rate was 6.0 lbs acid equivalent of 2,4-DP-p per acre (ae 2,4-DP-p/A), with a maximum of two applications per year. The Task Force indicated that the majority of use rates range from 0.20 - 0.75 lb ae 2,4-DP-p/A.
Application Timing:	Post-emergence, when weeds are young and actively growing.
Registrants:	A.H. Marks and Company Limited, NuFarm UK Limited, and NuFarm Americas Incorporated.

D. Estimated Usage of Pesticide

The majority of 2,4-DP-p is co-formulated with other chlorophenoxy herbicides for use on residential lawns, with smaller usage in other recreational turf and other non-agricultural grassy areas. Based on usage information provided by the 2,4-DP-p Task Force, total annual domestic usage of 2,4-DP-p is approximately 4 million pounds: 60% is applied to residential turf, 8% is applied to sports turf, 9% is applied to golf courses, 8% is applied to commercial turf, 10% is applied to sod farms, and 5% is applied to uncultivated non-agricultural land. According to the Task Force, geographical use areas for applications to turf are in roughly the following descending order: Midwest, Northeast, South, Northwest, and West.

III. Summary of 2,4-DP-p Risk Assessments

The purpose of this summary is to assist the reader by identifying the key features and findings of these risk assessments, and to help the reader better understand the conclusions reached in the RED. The human health and ecological risk assessments and supporting documents found in Appendix C were used to formulate the safety finding and regulatory decision for the pesticidal use of dichlorprop-p and its related salts.

While the risk assessments and related addenda are not included in this document, they are available in the OPP Public Docket, docket number EPA-HQ-OPP-2006-0944, and may be accessed through the Agency's website at http://www.regulations.gov/. Hard copies of these documents may also be found in the OPP public docket under this same docket number.

- *2-(2,4-dichlorophenoxy) R-propionic acid (2,4-DP-p), its salts and esters. HED Human Health Risk Assessment. August 13, 2007.*
- *2,4-DP-p: Occupational and Residential Exposure Assessment for the Reregistration Eligibility Decision. April 3, 2007*
- *2,4-DP-p: Refined Occupational and Residential Exposure Assessment of Granular Products for the Reregistration eligibility Decision. August 7, 2007.*
- *FQPA Drinking Water Assessment for Dichlorprop-p. April 12, 2007.*
- *Environmental Fate and Effects Science Chapter for 2,4-DP-p acid, 2,4-DP-p DMAS, and 2,4-DP-p EHE. August 24, 2007.*

A. Human Health Risk Assessment

The human health risk assessment addressed potential risks from all registered sources. Because 2,4-DP-p is not registered on any food commodity in the U.S., the Agency assessed potential exposures via residues in drinking water, residential uses, and occupational applications. For the complete human health risk assessment, refer to *2-(2,4-dichlororphenoxy) R-propionic acid (2,4-DP-p), its salts and esters. HED Preliminary Human Health Risk Assessment, August 13, 2007,* which is available in the public docket.

1. Toxicity of Dichlorprop-p

The toxicology database for dichlorprop contains studies conducted with both the older racemic 2,4-DP and enriched isomer 2,4-DP-p. The older toxicity studies used 2,4-DP, while the newer toxicity studies were conducted with 2,4-DP-p. Available toxicity profiles comparing 2,4-DP-p and the older racemic 2,4-DP showed no significant differences in toxicity between the two isomeric forms. Degradation products of 2,4-DP-p include 2,4-dichlorophenol, 2,4-dichloroanisole, and carbon dioxide, which are all common degradates to 2,4-D. The OPP Metabolism Assessment Review Committee (MARC) determined that all residues other than 2,4-D are not of risk concern due to low occurrence under environmental conditions, comparatively low toxicity, or a combination thereof. The database to assess potential human exposures to 2,4-DP-p is complete and deemed adequate for evaluating hazard.

EPA relied on available 2,4-DP and 2,4-DP-p toxicity studies that assessed acute, subchronic and chronic toxicity, mutagenicity, multi-generation reproduction effects, and developmental toxicity. Both 2,4-DP and 2,4-DP-p were tested in rat subchronic and developmental toxicity studies, which indicated that 2,4-DP and 2,4-DP-p generally produced similar toxicity at comparable dose levels in subchronic and developmental toxicity studies in rats. A chronic feeding toxicity study conducted with 2,4-DP-p in rats was not available; thus, the chronic feeding study with 2,4-DP is used as a bridging study. Therefore, the 2,4-DP-p database, with a bridging chronic toxicity study with 2,4-DP, is adequate for selecting toxicity endpoints for risk assessment.

As for the different forms of 2,4-DP-p (2,4-DP-p acid, 2,4-DP-p EHE and 2,4-DP-p DMAS), there were no data to compare the relative toxicities. However, the rat metabolism studies on 2,4-DP-p, 2,4-DP-p EHE and 2,4-DP-p DMAS showed similar pharmacokinetic parameters between all compounds. These studies showed that both 2,4-DP-p EHE and 2,4-DP-p DMAS were quantitatively converted to the 2,4-DP-p free acid and absorbed, distributed and metabolized. Furthermore, an *in vitro* dissociation/degradation study conducted with 2,4-DP-p EHE showed that all of the administered 2,4-DP-p EHE was converted to 2,4-DP-p. It was concluded that in the *in vivo* environment, the ester form of 2,4-DP-p EHE is expected to hydrolyze to the free acid 2,4-DP-p and be absorbed, distributed, and metabolized. 2,4-DP-p DMAS is also expected to hydrolyze to the 2,4-DP-p acid form under *in vivo* conditions.

a. Toxicity Profile and Endpoint Selection

The available acute toxicity studies indicate that 2,4-DP-p EHE and DMAS are of relatively low oral, dermal, and inhalation toxicity (Toxicity Categories III and IV). 2,4-DP-p is a corrosive ocular irritant and is a Toxicity Category I for primary eye irritation. Available dermal studies indicate that 2,4-DP-p was not a dermal sensitizer; however, 2,4-DP-p EHE and 2,4-DP-p DMAS were dermal sensitizers. Table 4 shows the acute toxicity profile of 2,4-DP-p.

Table 4. Acute Toxicity Profile for 2,4-DP-p acid, DMAS, and EHE.

Study Type	2,4-DP-p		2,4-DP-p DMAS		2,4-DP-p EHE	
	Results	Toxicity Category	Results	Toxicity Category	Results	Toxicity Category
Acute Oral - rat	567 mg/kg	III	637 mg/kg	III	825 mg/kg	III
Acute Dermal - rat	LD_{50} >2,000 mg/kg	III	>2,000 mg/kg	III	>2,000 mg/kg	III
Acute Inhalation - Rat	>2.7 mg/kg	IV	>5.28 mg/kg	IV	>4.1 mg/kg	IV
Primary Eye Irritation - Rabbit	A severe eye irritant	I	NA	---	NA	---
Primary Skin Irritation - Rabbit	A slight or mild irritant	IV	NA	---	NA	---
Dermal Sensitization - Guinea pig	Not a skin sensitizer	N/A	A skin sensitizer	N/A	A skin sensitizer	N/A

mg/kg = milligrams per kilogram n/a = not applicable

The Agency has classified 2,4-DP-p for potential carcinogenicity as "not likely to be carcinogenic to humans." A 100X uncertainty factor (UF) is used to account for interspecies extrapolation and intraspecies variability (10X and 10X, respectively). The reference doses used in the human health risk assessment for 2,4-DP-p are listed in Table 5.

Table 5. Summary of Toxicological Doses and Endpoints for 2,4-DP-p.

Exposure Scenario	Point of Departure Uncertainty Factor RfD/Level of Concern	Study and Toxicological Effects
Acute Dietary (All populations)	NOAEL = 5.1 mg/kg/day UF = 100 Acute RfD = 0.05 mg/kg/day	90-day oral toxicity study in dogs. (MRID 43462601) LOAEL = 15.7 mg/kg/day based on frequent diarrhea in 4/5 males and 2/5 females during weeks 1-10.
Chronic Dietary (All populations)	NOAEL = 3.6 mg/kg/day UF = 100 Chronic RfD = 0.036 mg/kg/day	2-year chronic toxicity study in rats. (MRID 00146394) LOAEL = 11 mg/kg/day based on decreases in specific gravity and protein in urine.
Incidental Oral (Short-term 1-30 days)	NOAEL = 5.1 mg/kg/day UF = 100 LOC = 100	90-day oral toxicity study in dogs. (MRID 43462601) LOAEL = 15.7 mg/kg/day based on frequent diarrhea in 4/5 males and 2/5 females during weeks 1-10.
Incidental Oral (Intermediate-term 1-6 months)	NOAEL = 3.6 mg/kg/day UF = 100 LOC = 100	2-year chronic toxicity study in rats. (MRID 00146394) LOAEL = 11 mg/kg/day based on decreases in specific gravity and protein in urine.
Dermal (Short- (1-30 days) and Intermediate-term (1-6 months))	No dermal exposure quantification is required because no hazard was identified.	
Inhalation (Short-term 1-30 days)	NOAEL = 5.1 mg/kg/day UF = 100 LOC = 100	90-day oral toxicity study in dogs. (MRID 43462601) LOAEL = 15.7 mg/kg/day based on frequent diarrhea in 4/5 males and 2/5 females during weeks 1-10.
Inhalation (Intermediate-term 1-6 months)	NOAEL = 3.6 mg/kg/day UF = 100 LOC = 100	2-year chronic toxicity study in rats. (MRID 00146394) LOAEL = 11 mg/kg/day based on decreases in specific gravity and protein in urine.
Cancer	Classification: "Not Likely to be Carcinogenic to Humans."	

NOAEL = No Observed Adverse Effects Level
LOAEL = Lowest Observed Adverse Effects Level
UF = Uncertainty Factor
mg/kg/day = milligram per kilogram per day
MOE = Margin of Exposure
RfD = Reference Dose
LOC = Level of Concern

b. Dietary Exposure (Drinking Water Only)

EPA assessed potential exposure to 2,4-DP-p resulting only from drinking water exposure, based on the quick and complete dissociation of 2,4-DP-p DMAS and the rapid

hydrolysis of 2,4-DP-p EHE into 2,4-DP-p acid, DMAS, and EHE ions. Therefore, the drinking water assessment for 2,4-DP-p DMAS and 2,4-DP-p EHE is represented by the acid. For more detail on the toxicological database and Agency's drinking water determination, refer to the *2-(2,4-dichlorophenoxy) R-propionic acid (2,4-DP-p), its salts and esters. HED Human Health Risk Assessment*, dated August 13, 2007, and the *FQPA Drinking Water Assessment for Dichlorprop-p (2,4-DP-p)*, dated April 12, 2007, which are available in the public docket.

Exposure to pesticides from drinking water can occur through surface and groundwater contamination. All forms of 2,4-DP-p are soluble in water and mobile in terrestrial and aquatic environments, giving it the potential to move in water and be transported in runoff from the application site. The Agency considers potential risks from both acute (one-day) and chronic (long-term) drinking water exposures and uses either modeling or actual monitoring data, if available. To model potential runoff concentrations from applications of 2,4-DP-p, EPA used the Tier II Pesticide Root Zone Model (PRZM), and Exposure Analysis Modeling System (EXAMS) models. EPA has assessed potential acute and chronic dietary risk from exposure to 2,4-DP-p in only surface water sources using screening-level model estimates. Because the estimated surface water residues are higher than those of groundwater, exposures to surface water residues are presented here and are considered to be protective of potential exposure to groundwater drinking sources.

Acute Drinking Water Assessment

The acute estimated drinking water concentration (EDWC) used to estimate 2,4-DP-p residues in surface water sources of drinking water were determined using the Tier II PRZM/EXAMS model. Conservative screening-level drinking water estimates were used in this assessment (i.e., the highest peak surface water level for a one-in-ten year concentration); therefore, the risk estimates were reported at the 95th percentile of exposure. The acute analysis was performed incorporating the EDWC value of 40.22 parts per billion (ppb) for ground spray applications to Christmas trees, because this application yielded the highest EDWC values. For the U.S. population, the exposure was 0.002101 milligram per kilogram per day (mg/kg/day), which utilized 4.1% of the acute reference dose (aRfD). The exposure for all infants, which was the most highly exposed population subgroup, was 0.00792 mg/kg/day, which utilized 16.0% of the aRfD at the 95th percentile of exposure. Thus, all potential acute exposures to 2,4-DP-p residues in drinking water are below the Agency's Level of Concern (LOC). Table 6 shows acute drinking water exposures and risks for all populations.

Chronic Drinking Water Assessment

The chronic EDWC used to estimate 2,4-DP-p residues in surface water sources of drinking water was determined using the Tier II PRZM/EXAMS model. A chronic drinking water analysis was performed based on the chronic EDWC value for Christmas trees, resulting in a concentration of 2.69 ppb. For the U.S. population, the exposure was 0.000057 mg/kg/day, which utilized <1% of the chronic reference dose (cRfD). The exposure for all infants, which was the most highly exposed population subgroup, was 0.000186 mg/kg/day, which utilized <1% of the cRfD. Thus, all potential chronic exposures to 2,4-DP-p residues in drinking water are

below the Agency's LOC. Table 6 shows the chronic drinking water exposures and risks for all populations.

Table 6. Summary of Acute and Chronic Drinking Water Exposure and Risk for 2,4-DP-p						
Population Subgroup Age	Acute Drinking Water 95th Percentile			Chronic Drinking Water		
	aRfD (mg/kg/day)	Dietary Exposure (mg/kg/day)	% aRfD	cRfD (mg/kg/day)	Dietary Exposure (mg/kg/day)	% cRfD
General U.S. Population	0.051	0.002101	4.1	0.036	0.000057	<1
All Infants (<1 year)		0.007922	16		0.000186	<1
Children 1-2 years		0.003297	6.5		0.000084	<1
Children 3-5 years		0.003012	5.9		0.000079	<1
Females 13-49 years		0.001958	3.8		0.000053	<1

aRfD = Acute Reference Dose cRfD = Chronic Reference Dose
mg/kg/day = milligram per kilogram per day

2. Residential and Non-Occupational Exposure and Risk

Residential exposure assessments consider all potential non-occupational pesticide exposure, other than exposure due to residues in drinking water. To estimate potential exposures, EPA calculates a margin of exposure (MOE), which is then compared to a LOC to measure potential risk. The LOC is the same value as the Uncertainty Factors (UF), to account for interspecies extrapolation (10X) and intraspecies variability (10X), applied to a particular toxicity study. For 2,4-DP-p, the target MOE is 100. Any MOE greater than the target MOE would not pose any risks of concern to the Agency.

Homeowner exposures to 2,4-DP-p may result from outdoor residential applications to lawns and other turf areas. Residential products are typically co-formulated with other chlorophenoxy herbicides as dry weed and feed products or as liquid concentrates or Ready-to-Use (RTU) sprays. Both spot and broadcast treatments are currently permitted homeowner applications. Exposures are expected to be short-term in duration, as broadcast treatments are only permitted twice per year, and any repeat spot treatments would occur two to three weeks after the initial application. The majority of products are formulated and typically used at rates ranging from 0.25 - 0.75 lb ae 2,4-DP-p/A. The higher rates ranging from 2.0 - 6.0 lbs ae 2,4-DP-p/A registered for spot treatments (less than 1,000 ft^2/A). Because of the small amount of area treated and due to the specific and limited use pattern (i.e., woody plants or brush on non-agricultural, uncultivated land), the residential handler and applicator scenarios are considered to be protective of any exposure from spot treatment uses in the risk assessment.

The Agency has determined that there is a potential for exposures in residential settings for those who handle (mix, load, and apply) products containing 2,4-DP-p, and for potential oral and incidental ingestion exposures for toddlers playing on treated turf areas. Based on available dermal exposure studies, no systemic toxicity occurred at the limit dose of 1,000 mg/kg/day. Additionally, there is no evidence of developmental toxicity by dermal routes of exposure. Thus, a dermal exposure assessment was not conducted. For specific details, refer to the *2,4-DP-p: Occupational and Residential Exposure Assessment for the Reregistration Eligibility Decision*,

dated April 3, 2007, and *2,4-DP-p: Refined Occupational and Residential Exposure Assessment of Granular Products for the Reregistration eligibility Decision*, dated August 7, 2007.

a. Residential Handler Exposure and Risk Assessment

The Agency has determined that there is a potential for short-term (up to 30 days) inhalation exposure in residential settings for those who handle (mix, load, and apply) products containing 2,4-DP-p. Because products containing 2,4-DP-p are only applied once or twice a year, with at least two to three weeks between applications for spot treatments, neither intermediate- or long-term exposure is expected. Thus, only short-term inhalation exposure was assessed. The maximum application rate assessed for residential handlers is 0.75 lb ae 2,4-DP-p/A, the highest typical rate that is used by homeowners. The target MOE for residential handlers is 100 for short-term inhalation exposures. The MOEs for short-term residential handler exposure for all scenarios are greater than the target LOC of 100 and are not of concern to the Agency. Table 7 shows the MOEs for all residential handler exposure scenarios.

Table 7. 2,4-DP-p Short-term MOEs for Homeowner Applications to Lawns

Exposure Scenario	Treated Area (acre/day)*	Inhalation MOE
1. Hand Application of Granules (spot treatment)	1,000 ft^2 (0.023 acre)	44,000
2. Belly Grinder Application (spot treatment)		330,000
3. Broadcast Spreader; Load/Apply Granules	0.5	1,000,000
4. Hose end sprayer; MLAP liquids (mix your own)	0.5	56,000
5. Hose end sprayer; MLAP liquids (Ready-to-Use)	0.5	87,000
6. Hand Held Pump Sprayer; MLAP liquids	1,000 ft^2 (0.023 acre)	7,700,000
7. Ready to Use Sprayer; MLAP liquids		1,100,000

MLAP = mix/load/apply MOE ≥ 100 = no risk of concern

* = highest typical application rate of 0.75 lb ae 2,4-DP-p/A

b. Residential Post-application (Turf) Exposure Assessment

After application of products containing 2,4-DP-p to turf, there is a potential for exposure to toddlers playing on treated lawns and other recreational areas. Because there are no exposure risks of concern resulting from dermal exposure, only short-term incidental oral exposure and incidental granule ingestion exposure were assessed. The target MOE for residential post-application exposure is 100.

Short-term Incidental Oral Exposure Assessment

Children, namely toddlers, can be exposed to 2,4-DP-p while playing on treated lawns. EPA assessed various oral ingestion exposure scenarios that would occur repeatedly over a short-term (up to 30 days) duration. Because any one or all three of these exposures may occur within a short-term duration, combined exposures were also assessed. Based on exposures from transferable turf residues (TTR) applied at the maximum use rate, all MOEs are greater than the target LOC of 100 and pose no risks of concern to the Agency. A summary of the MOEs for each exposure scenario assessed is shown in Table 8.

Table 8. 2,4-DP-p MOEs for Short-term Incidental Oral Exposures to Toddlers		
Exposure Scenario	Dose (mg/kg/day)*	MOE
Hand-to-mouth Ingestion	0.0112	460
Object-to-Mouth Ingestion	0.0028	1820
Soil Ingestion	0.000038	136,000
Total of Above Exposures	0.014	360

* = highest typical application rate of 0.75 lb ae 2,4-DP-p/A MOE ≥ 100 = no risk of concern
mg/kg/day = milligram per kilogram per day

Granule Ingestion Exposure Assessment

The Agency also considered incidental oral ingestion of granular 2,4-DP-p products for toddlers playing on treated lawns or other turf areas. Granule ingestion was assessed separately because this scenario is considered a one-time (single acute episodic) exposure event, rather than a repeated exposures over a duration of up to 30 days. The incidental oral ingestion of granules MOE is greater than the target LOC of 100 and poses no risk of concern to the Agency. The summary of the MOE for the granular exposure scenario assessed is shown in Table 9.

Table 9. 2,4-DP-p MOEs for Incidental Oral Ingestion of Granules by Toddlers			
Percent 2,4-DP-p in Granular Product	Potential Dose Rate (mg/day)	Potential Dose (mg/kg/day)	Acute MOE
0.35	0.315	0.021	140

MOE ≥ 100 = risk not of concern mg/kg/day = milligram per kilogram per day

3. Aggregate Exposure and Risk

Because the majority of 2,4-DP-p usage is applied annually to residential lawns, the Agency determined that aggregating the drinking water and residential exposures would be more representative of actual exposure. When aggregating risk from various sources, both the route and duration of exposure are considered. Because there are no registered food uses in the U.S. and dermal exposures are not expected to be a significant exposure route of concern, only 2,4-DP-p exposures via drinking water and residential post-application exposure routes are considered in the aggregate assessment.

To estimate residential handler aggregate risk, a hand application of granules was used to estimate the aggregate risk because this scenario results in the highest potential exposure among all assessed scenarios. For residential exposure in children, three subpopulation groups were examined: all infants (<1 year), the group which resulted in the highest potential exposure to drinking water, and children 1-2 and 3-5 years old who might exhibit hand-to-mouth, object-to-mouth, and soil ingestion behaviors. All aggregated exposure scenarios assessed result in MOEs greater than 100 and do not pose any risks of concerns to the Agency. A summary of exposures and the respective MOEs is shown in Table 10.

Table 10. 2,4-DP-p MOEs for Aggregate Short-term Exposures (Drinking Water and Residential)				
Exposure Scenario	Drinking Water Exposure (mg/kg/day)	Residential Exposure (mg/kg/day)	Aggregate Exposure (mg/kg/day)	MOE
Residential Handler, hand application of granules	0.000056	0.000115	0.000171	29,800
Incidental Oral Exposure, <1 Year Old	0.000186	0.014	0.0142	360
Incidental Oral Exposure, 1 - 2 Years Old	0.000084	0.014	0.0141	360
Incidental Oral Exposure, 3 - 5 Years Old	0.000079	0.014	0.0141	360

MOE ≥ 100 = no risk of concern mg/kg/day = milligram per kilogram per day

4. Occupational Exposures Assessment

Workers can be exposed when mixing, loading, and applying 2,4-DP-p, and there is also the potential for post-application exposure when re-entering a treated site. The Agency assessed risk to occupational handlers and workers in the same manner as it used to assess risks to residential users, using the MOE approach. The target MOE of 100 reflects the ratio of the estimated exposure divided by the NOAEL. MOEs greater than 100 are not of concern to the Agency.

To assess the handler risks, the Agency used surrogate unit exposure data from the Pesticide Handler Exposure Database (PHED), the Outdoor Residential Exposure Task Force (ORETF) studies, and the California Department of Pesticide Regulation (CA DPR). The PHED data were used primarily for the large scale agricultural and forestry scenarios and the ORETF data were used to assess exposures to professional lawn care operators. The CA DPR data were used for the backpack applicator forest site preparation scenario where multiple applicators are supplied by a nurse tank. Short- and intermediate-term handler risks were assessed, with inhalation exposures being the exposure route of concern.

MOEs for both the maximum and typical application use rates for all short- (up to 30 days) and intermediate-term (1 - 6 months) agricultural handler scenarios are assessed at baseline PPE except aerial applicators, which were assessed with closed cockpit (i.e., engineering controls) built in. Based on these application scenarios, all assessed scenarios do not pose a risk concern at baseline exposure except for the following two scenarios: (1) mixing and loading liquids for aerial forestry applications for short- and intermediate-term durations, and (2) mixing and loading wettable powder for turfgun for intermediate-term duration. Because aerial applications are no longer supported, this use does not pose a risk of concern. For the mixer/loader wettable powder for turfgun scenario, the addition of a filtering facepiece respirator (i.e., PF5 respirator) in addition to baseline personal protective equipment (PPE) results in acceptable MOEs. A summary of the MOEs is shown in Table 11.

Table 11. 2,4-DP-p MOEs for Occupational Handlers and Applicators Using Baseline PPE					
Exposure Scenario	Crop or Site	Application Rate (lb ae/acre)	Acres/ Day	Short- term/ Intermediate-term Exposure MOE	Level of PPE
Mixer/Loader (M/L)					
M/L Liquids for Aerial	Conifer Release	0.87	1200	280/200	Baseline
	Forestry	6		200/150	Respirator with PF5
M/L Liquids for ROW Sprayer	ROW		50	990/700	Baseline
M/L Wettable Powder for Turfgun Application	Turf	0.75	100	110/390	Baseline/ Respirator with PF5
M/L Liquids for Turf Gun	Turf			4,000/2,800	Baseline
M/L Liquids for Groundboom	Sod Farms		80	5,000/3,500	Baseline
M/L Liquids for Backpack Sprayer	Forest Site Prep	6	40	1,200/880	Baseline
M/L Liquids for Groundboom	Golf Courses	0.75		9,900/7,000	Baseline
Load Granulars for Broadcast Spreader	Golf Courses	0.75	40	7,000/4,900	Baseline
Applicator					
Aerial* - closed cockpit	Conifer Release	0.87	1,200	9,900/7,000	Baseline
	Forestry	6		729/520	Baseline
	ROW	0.75	350	20,000/1,800	Baseline
Groundboom	Sod Farms		80	8,000/5,700	Baseline
	Golf Courses		40	16,000/11,000	Baseline
ROW	ROW	6	50	310/220	Baseline
Turfgun	Turf	0.75	5	68,000/1,700	Baseline
Broadcast Spreader	Golf Courses		40	9,900/67,000	Baseline
Backpack	Forest Site Prep	6	4	280/190	Baseline
Mixer/Loader/Applicator (M/L/A)					
M/L/A Liquid Flowables with Turfgun	Turf	0.75	5	53,000/37,000	Baseline
M/L/A Liquids with Backpack Sprayer	Forestry/ ROW	6	4	500/350	Baseline
Load/Apply Granules with a Push Cyclone	Turf	0.75	5	13,000/9,000	Baseline
Flagger					
Flag Aerial Application*	ROW	6	350	490/340	Baseline

MOE ≤ 100 = no risk of concern ROW = rights-of-way PPE = Personal Protective Equipment
Baseline = PPE including single-layer gloves, long-sleeved shirt, shoes and socks, and long pants.
* = aerial applications are not being supported by the registrants.

b. Occupational Post-application Exposures

There is potential for dermal and inhalation exposures to post-application workers who enter treated areas. However, the Agency determined that these exposures are minimal and are unlikely to pose any risks of concern. Occupational post-application dermal risks were not assessed because of the lack of any systemic toxicity via dermal exposures for all forms of 2,4-DP-p. Occupational post-application inhalation exposures are not anticipated because 2,4-DP-p has a low vapor pressure and, thus, will not readily volatilize, and because it is applied outdoors as a coarse spray. Because it is a severe eye irritant, the default Restricted Entry Interval (REI) for 2,4-DP-p is 48 hours for labels including uses where the Worker Protection Standard (WPS) applies. Therefore, with the existing protective measures in place, the Agency has determined that any potential post-application exposures do not pose any risks of concern to the Agency.

5. Incident Reports

The Agency reviews various databases to determine if any substantiated reported incidents warrant further investigation for effects not considered. Databases searched include the Office of Pesticides Program Incident Data System (IDS), Poison Control Center, California Department of Pesticide Regulation (CDPR), the National Pesticide Telecommunications Network (NPTN), and the National Institute of Occupational safety and Health's Sentinel Event Notification system for Occupational Risks (NIOSH SENSOR). There were no human incident reports identified for 2,4-DP-p.

B. Environmental Risk Assessment

The ecological risk assessment evaluated three active ingredients: 2,4-DP-p acid, 2,4-DP-p DMAS, and 2,4-DP-p EHE. Because not all ecological studies conducted with each of the three 2,4-DP-p forms were available, the Agency developed a strategy to bridge the majority of fate and ecotoxicity data requirements for 2,4-DP-p acid, 2,4-DP-p DMAS, and 2,4-DP EHE. Likewise, this bridging strategy was used to reflect the most sensitive endpoint assessed. Based on available bridging data, which demonstrated that 2,4-DP-p DMAS rapidly dissociated to 2,4-DP-p acid and the dimethylamine ion, the Agency determined that acceptable studies conducted with the 2,4-DP-p acid, EHE, or DMAS form could be used as "surrogate" data, as appropriate, for the respective unavailable or deficient 2,4-DP-p studies. The Agency expects that the toxicities between 2,4-DP-p acid and 2,4-DP-p DMAS are similar, based on the assumption that 2,4-DP-p DMAS will completely and rapidly dissociate to 2,4-DP-p acid and the DMAS ion. In most cases, the same is assumed for 2,4-DP-p EHE. The one exception is in considering exposure to non-target organisms due to direct deposition from spray drift, as 2,4-DP-p EHE may persist in waters with an acidic to neutral pH. However, 2,4-DP-p EHE is not expected to persist in runoff waters due to degradation via microbial-mediated or surface catalyzed hydrolysis processes. For consistency throughout this section, 2,4-DP-p will refer to the acid equivalent of dichlorprop, where all appropriate conversions are made from the equivalent DMAS and EHE forms. A summary of the EPA's ecological fate and effects assessment is presented below. The full assessment, *Environmental Fate and Effects Science Chapter for 2,4-DP-p acid, 2,4-DP-p DMAS, and 2,4-DP-p EHE*, dated August 24, 2007, and response to public

comments are available on the internet and in the public docket at www.regulations.gov (EPA-HQ-OPP-2006-0944).

1. Environmental Fate and Transport

Available environmental fate data indicates that 2,4-DP-p is non-persistent to moderately persistent. The primary routes of dissipation appear to be photodegradation in water, microbial-mediated degradation, and leaching. 2,4-DP-p does not adsorb strongly to soils and, thus, is likely to be mobile in terrestrial and aquatic environments. 2,4-DP-p DMAS and 2,4-DP-p EHE are expected to dissociate quickly, where the dimethylamine and the ethyl-hexyl alcohol ions degrade by microbial-mediated processes. 2,4-DP-p rapidly photodegrades ($t_{1/2}$ = 4 days) in aqueous environments, and is non-persistent to moderately persistent ($t_{1/2}$ = 14 days) in aerobic terrestrial and aquatic environments. Conversely, 2,4-DP-p can be persistent in anaerobic aquatic environments ($t_{1/2}$ = 159 days). 2,4-DP-p is stable to abiotic hydrolysis in pH 5, 7, and 9 buffer solutions. Degradation products of 2,4-DP-p include 2,4-dichlorophenol, 2,4-dichloroanisole, and carbon dioxide, which are all common degradates to 2,4-D. The Agency reviewed available data on 2,4-dichlorophenol, which indicated that the toxicity is slightly greater (less than one order of magnitude than the parent, 2,4-DP-p) for aquatic organisms. The Agency determined that these degradates would not pose any greater risk concerns than that of the parent. Thus, the Agency is assuming that degradates are of equal or less toxicity than the parent compound.

The potentially highest residue levels can occur in surface waters adjacent to treated areas due to spray drift at the time of application and/or from runoff after a rain event. Because 2,4-DP-p EHE may persist longer in acidic to neutral pH waters, the Agency considered potential off-site movement from the direct deposition via spray drift from brush control uses. Current labeling does not prohibit aerial applications; thus, direct deposition from this application method was considered in the ecological assessment. However, the technical registrants have confirmed that this application method will no longer be supported. Thus, aerial applications will be prohibited for products containing 2,4-DP-p.

2. Ecological Exposure and Risk

The pesticide use profile, exposure data, and toxicity information are used to determine risk estimates to non-target aquatic and terrestrial organisms. As applicable, acute and chronic terrestrial toxicity studies are required to establish the potential toxicity (hazard) of 2,4-DP-p to non-target species. Estimated Environmental Concentrations (EECs) are estimates of potential residue concentrations from the maximum or typical application rate of 2,4-DP-p, to which an organism may be exposed. A risk quotient (RQ) is the ratio of the EECs to the organism's toxicity endpoint, which would yield the maximum exposure estimates. The RQ is then compared to the level of concern (LOC) to determine if that particular exposure scenario would pose a risk of concern to the non-target organism. Table 12 outlines the Agency's LOCs and the corresponding risk presumptions.

Table 12. Agency's LOCs and Risk Presumptions			
Risk Presumption	LOC Terrestrial Animals	LOC Aquatic Animals	LOC Plants
Acute Risk - there is potential for acute risk; regulatory action may be warranted.	0.5	0.5	1
Acute Endangered Species – there is potential for endangered species risk; regulatory action may be warranted.	0.1	0.05	1
Chronic Risk - there is potential for chronic risk; regulatory action may be warranted.	1	1	N/A

a. Terrestrial Organisms

Terrestrial animals (birds, mammals, reptiles, and terrestrial-phase amphibians) that are nesting in or near the treated field may be exposed to 2,4-DP-p due to direct deposition from labeled use of the pesticide, runoff, and from spray drift onto areas adjacent to treated sites. The Agency estimates exposures and potential risk to birds and mammals, which also serve as surrogates for exposures to terrestrial-phase amphibians and reptiles, and dryland and semi-aquatic plants. For exposure to terrestrial animals and plants, pesticide residues on food items are estimated based on the assumption that organisms are exposed to a single pesticide residue in a given exposure scenario.

The greatest 2,4-DP-p residues and exposure levels are likely to occur in the surface soil and on foliage (e.g., short and tall grasses, broadleaf plants), seeds, and insects on treated areas immediately following ground spraying and/or granular treatments. In addition to exposure through spray residues on and adjacent to the application area, direct terrestrial exposure is also expected through granular applications, as animals may ingest the granules. Bioaccumulation of 2,4-DP-p in the food chain is not expected to be a significant exposure source to non-target terrestrial organisms.

Residues of 2,4-DP-p from single and multiple applications are expected to occur on avian and mammalian food items. The Agency used the RQ method to determine potential risks of concern. Predicted maximum and mean concentrations of pesticide residues are based on the Kenaga nomogram by Hoerger and Kenaga (1972) as modified by Fletcher et al. (1994). The typical and maximum application rates are used to produce EECs and were used in the Agency's screening-level analyses. The Agency reviewed available acute and chronic terrestrial organism toxicity studies to establish the hazard of 2,4-DP-p to non-target species. With this information, each EEC is then divided by the corresponding acute and/or chronic toxicity value, to produce the RQ, and evaluated against the Agency's LOC to measure potential risk to that organism.

In estimating foliar residues for this screening-level assessment, the Agency assessed a maximum use scenario, based on the following assumptions:

- residues are based on maximum application rate of 6.0 lbs ae 2,4-DP-p/A used or the maximum typical rate of 0.75 lb ae 2,4-DP-p/A, with 2 applications made per year;
- an interval of 30 days, the shortest timeframe between repeat applications;
- most, if not all, of the applied pesticide will settle in the use area; and
- a first-order residue default degradation half-life of 35 days.

Based on the above factors, EPA estimated several EECs for various food sources (grasses, fruit, seed, and insects) associated with the registered uses of 2,4-DP-p. Consumption-weighted EECs are determined for each food source to be more representative of actual exposures based on the size of the animal and its typical eating habits. The EECs on food items may be compared directly with dietary toxicity data or converted to a single oral dose. Single oral dose estimates represent an exposure scenario where absorption of the pesticide is maximized over a single ingestion event and represents a conservative estimate.

1. Avian and Mammalian Assessment

Residues of 2,4-DP-p from single and multiple application scenarios are expected to occur on avian and mammalian food items. Predicted maximum and typical EECs of pesticide residues from single and multiple applications of 2,4-DP-p were used in the screening-level ecological assessment. In estimating foliar residues from multiple applications, EPA used first order dissipation values, maximum application rates, minimum application intervals, and maximum number of applications.

The EECs were calculated using the T-REX (Version 1.2.3) model and corresponding avian acute and chronic RQs are based on the most sensitive acute and chronic endpoints, respectively, for birds. 2,4-DP-p appears to cause moderate acute oral toxicity to avian and mammalian species. Table 13 shows the toxicity endpoints used in the avian and mammalian assessments.

Table 13. Summary of Avian Acute and Chronic Toxicity Data Conducted with 2,4-DP-p

Species	LD_{50}	Acute Oral Toxicity, MRID	LC_{50}	NOAEC/LOAEC (mg/kg), MRID
Conducted with 2,4-DP-p DMAS				
Japanese quail	---	---	---	NOAEC - 244 mg /kg LOAEC - not determined 46879201
Northern Bobwhite quail	242 mg/kg	Moderately toxic 42987901	>4,658 mg/kg	NOAEC - not determined
Conducted with 2,4-DP-p acid				
Laboratory rat	534 mg/kg	Category III 42614601	---	NOAEC - 40 LOAEC - 219.6 46721401

mg/kg = milligram per kilogram

Birds

For birds, the acute risk LOC is 0.5. Based on estimated avian dose-based acute RQs for spray applications to both turf and for brush control applications, the LOC for non-endangered birds is exceeded for some scenarios. The acute endangered RQ exceeded the LOC of 0.1 for acute risk to birds. Because the subacute dietary LC_{50} was non-definitive (greater than the highest test concentration 4,625 mg ae/kg), dietary based acute RQs would not exceed the LOC and, thus, were not calculated in the assessment. The dietary-based chronic RQs for birds exceed the Agency's LOC of 1 for most food items, which applies to both non-endangered and endangered species. Calculations for dietary-based RQs are not adjusted for bodyweight. Tables 14 and 15 summarize the respective acute and chronic RQs for avian species, with LOC exceedances identified in bold text.

Table 14. 2,4-DP-p Acute Dose-based RQs for Birds, Spray Applications

Use	Application Rate	Body Weight (grams)	Acute RQs			
			Short Grass	Tall Grass	Broadleaf Plants/Small Insects	Fruits/ Pods/Seeds/ Large Insects
Ornamental Turf	0.75 lb ae/A 2 per season 30 days	20	**1.82**	**0.84**	**1.03**	0.11
		100	**0.82**	0.37	0.46	0.05
		1000	0.26	0.12	0.15	0.02
Woody Plant Control in Non-crop Areas	6.0 lbs ae/A 1 per season	20	**9.41**	**4.31**	**5.29**	**0.59**
		100	**4.21**	**1.93**	**2.37**	0.26
		1000	**1.34**	**0.61**	**0.75**	0.08

Acute non-endangered LOC for terrestrial animals ≥ 0.5, endangered LOC ≥ 0.1. Bold = LOC exceedance.

Table 15. 2,4-DP-p Chronic Dietary-based EECs and RQs for Birds, Spray Applications

Use Site	Application Rate	Food Items							
		Short grass		Tall Grass		Broadleaf plants/ small insects		Fruits/ pods/seed/ large insects	
Ornamental Turf	0.75 lb ae/A 2 per season 30 day interval	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
		279.37	**1.14**	128.04	0.52	157.14	0.64	17.46	0.07
Woody Plant Control in Non-crop Areas	6.0 lbs ae/A 1 per season	1440	**5.90**	660	**2.70**	810	**3.32**	90	0.37

Chronic non-endangered and endangered LOC for terrestrial animals is ≥ 1.0. Bold = LOC exceedance.

Birds can also be exposed to 2,4-DP-p from granular applications. Acute exposures to granular applications are measured based on the lethal doses available within one square foot immediately after application. Based on the modeled turf and non-crop areas treated for woody brush control, acute RQs exceeded the LOC for small and medium-sized birds. Table 16 summarizes the acute RQs, with non-endangered LOC exceedances identified in bold text, for birds consuming foodstuff treated with granular applications of 2,4-DP-p.

Table 16. 2,4-DP-p Acute Dose-based RQs for Birds, Granular Applications			
Use Site	Application Rate	Body Weight, grams	Acute RQ
Ornamental Turf	0.75 2 per season	20	**2.24**
		100	0.35
		1000	0.02
Woody Plant Control in Non-crop Areas	6.0 1 per season	20	**17.92**
		100	**2.81**
		1000	0.20

Acute non-endangered LOC for terrestrial animals ≥ 0.5, endangered LOC ≥ 0.1. Bold = LOC exceedance.

Mammals

As with birds, EPA assesses acute and chronic risk to mammals based on an acute LOC of 0.5, acute endangered LOC of 0.1, and a chronic LOC of 1.0. Mammalian acute and chronic RQs exceeded the LOCs for some food items based on both spray and granular applications at the maximum application rate of 6.0 lbs ae 2,4-DP-p/A. Although to a lesser degree, dietary-based chronic RQs also exceed the Agency's LOC. As expected, chronic RQ exceedances are greater with the higher application rate used for control of woody plants and brush. The acute and chronic RQ summaries are presented in Tables 17, 18, 19, and 20, with non-endangered LOC exceedances identified in bold text.

Table 17. 2,4-DP-p Acute Dose-based RQs for Mammals, Spray Applications							
Use	Application Rate	Body Weight (grams)	Acute RQs				
			Short Grass	Tall Grass	Broadleaf Plants/Small Insects	Fruits/pods/ large insects	Seeds
Ornamental Turf	0.75 lb ae/A 2 per season 30 day interval	15	0.23	0.10	0.13	0.01	0.00
		35	0.19	0.09	0.11	0.01	0.00
		1000	0.10	0.05	0.06	0.01	0.00
Woody Plant Control in Non-crop Areas	6.0 lbs ae/A 1 per season	15	**1.17**	**0.54**	**0.66**	0.07	0.02
		35	**1.00**	0.46	**0.56**	0.06	0.01
		1000	**0.54**	0.25	0.30	0.03	0.01

Acute non-endangered LOC for terrestrial animals ≥ 0.5, endangered LOC ≥ 0.1. Bold = LOC exceedance.

Table 18. 2,4-DP-p Acute Dose-based RQs for Mammals, Granular Applications			
Use Site	Application Rate	Body Weight, grams	Acute RQs
Ornamental Turf	0.75 2 per season	20	0.44
		100	0.23
		1,000	0.02
Woody Plant Control in Non-crop Areas	6.0 1 per season	20	**3.55**
		100	**1.88**
		1,000	0.15

Chronic non-endangered and endangered LOC for terrestrial animals is ≥ 1.0.
Bold = LOC exceedance.

Table 19. 2,4-DP-p Dose-based Chronic RQs for Mammals, Spray Applications							
Use	Application Rate	Body Weight, grams	Chronic RQs				
			Short Grass	Tall Grass	Broadleaf Plants/Small Insects	Fruits/pods/ large insects	Seeds
Ornamental Turf	0.75 lb ae/A 2 per season 30 day interval	15	**3.03**	**1.39**	**1.70**	0.19	0.04
		35	**2.59**	**1.19**	**1.46**	0.16	0.04
		1000	**1.39**	0.64	0.78	0.09	0.02
Woody Plant Control in Non-crop Areas	6.0 lbs ae/A 1 per season	15	**15.62**	**7.16**	**8.78**	0.98	0.22
		35	**13.34**	**6.11**	**7.50**	0.83	0.19
		1000	**7.15**	**3.28**	**4.02**	0.45	0.10

Chronic non-endangered and endangered LOC for terrestrial animals is ≥ 1.0. Bold = LOC exceedance.

Table 20. 2,4-DP-p Dietary-based Chronic RQs for Mammals				
Use Application Method	Application Rate	Food Items	EEC	Chronic RQ
Ornamental Turf	0.75 lb ae/A 2 per season 30 day interval	Short grass	279.37	**1.14**
		Tall grass	128.04	0.52
		Broadleaf plants/small insects	157.14	0.64
		Fruits, pods, seeds, and large insects	17.46	0.07
Woody Plant Control in Non-crop Areas	6.0 lbs ae/A 1 per season	Short grass	1440	**5.90**
		Tall grass	660	**2.70**
		Broadleaf plants/small insects	810	**3.32**
		Fruits, pods, seeds, and large insects	90	0.37

Chronic non-endangered and endangered LOC for terrestrial animals is ≥ 1.0. Bold = LOC exceedance.

2. Terrestrial and Semi-aquatic Plant Assessment

Non-target terrestrial and semi-aquatic plants can be exposed to 2,4-DP-p from spray drift and runoff moving to off-target field foliage and surface soil. Using TERRPLANT 1.2.1 modeling, EECs for terrestrial and semi-aquatic plants were derived for areas adjacent to the treatment site. Acute RQs for terrestrial plants are calculated by dividing the EEC by the EC_{25} from available Tier II seedling emergence and vegetative vigor toxicity tests. To calculate acute RQs for endangered species, EECs are divided by the NOAEC value. Table 21 shows the toxicity data used to evaluate risks to terrestrial and semi-aquatic plants.

Table 21. Summary of 2,4-DP-p Terrestrial Plant Toxicity Data			
Species	Toxicity	Most Sensitive Endpoint	MRID
2,4-DP-p Acid and DMAS Terrestrial Plant Toxicity			
Vegetative Vigor	Most sensitive monocot: onion NOAEC 0.010 lb ae/A EC_{25} 0.036 lb ae/A	Dry Weight	43525801
	Most sensitive dicot: cabbage, lettuce NOAEC 0.015 lb ae/A EC_{25} 0.003 lb ae/A		
Seedling Emergence	Most sensitive monocot: onion NOAEC 0.005 lb ae/A EC_{25} 0.29 lb ae/A		43016702
	Most sensitive dicot: lettuce NOAEC 0.005 lb ae/A EC_{25} 0.09 lb ae/A		
2,4-DP-p EHE Terrestrial Plant Toxicity			
Vegetative Vigor	Most sensitive monocot: corn NOAEC 0.064 lb ae/A EC_{25} 0.12 lb ae/A	Dry Weight	43279201
	Most sensitive dicot: lettuce NOAEC 0.0009 lb ae/A EC_{25} 0.011lb ae/A		
Seedling Emergence	Most sensitive monocot: oat NOAEC 0.023 lb ae/A EC_{25} 0.065 lb ae/A		43279202
	Most sensitive dicot: radish NOAEC 0.008 lb ae/A EC_{25} 0.038 lb ae/A		

RQs are developed for terrestrial (dryland) plants are based on 2,4-DP-p runoff and drift from one treated hectare moving to adjacent areas, whereas semi-aquatic areas (wetlands) are based on movement from a ten-hectare site. As expected with an herbicide, the acute LOCs (LOC of 1 for plants) were exceeded for endangered and non-endangered terrestrial and semi-aquatic plants located adjacent to treated areas, both as a result of combined runoff and spray drift, and from spray drift alone for 2,4-DP-p. This difference in the modeling values (1 versus 10 hectares) is reflected in the ten-fold difference in the resulting RQs, with non-endangered LOC exceedances identified in bold text, are shown in Table 22.

Table 22. 2,4-DP-p acid and DMAS Terrestrial Plant RQs (Acute only)												
Plant	Non-endangered						Endangered					
	Adjacent to treated sites		Semi-aquatic areas		Drift Alone		Adjacent to treated sites		Semi-aquatic areas		Drift Alone	
	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
*Aerial spray application (6.0 lbs ae/A)**												
M	0.60	**20.69**	3.30	**113.79**	0.300	**8.33**	0.60	**120**	3.30	**660**	0.300	**30**
D		**6.67**		**36.67**		**30**		**120**		**660**		**100**
Ground spray application (6.0 lbs ae/A)												
M	0.36	**12.414**	3.06	**105.52**	0.06	**1.67**	0.36	**72**	3.06	**612**	0.06	**6**
D		**4**		**34.00**		**6**		**72**		**612**		**20**
Granular ground application (6.0 lbs ae/A)												
M	0.30	**10.34**	3.00	**103.45**	*n/a*		0.30	**60**	3.00	**600**	*n/a*	
D		**3.33**		**33.33**				**60**		**600**		
*Aerial spray application (0.75 lb ae/A)**												
M	0.075	**2.59**	0.413	**14.22**	0.038	**1.04**	0.075	**15**	0.413	**82.5**	0.038	**3.75**
D		0.83		**4.58**		**3.75**		**15**		**82.50**		**12.5**
Ground spray application (0.75 lb ae/A)												
M	0.045	**1.55**	0.383	**13.19**	0.008	0.21	0.045	**9**	0.383	**76.5**	0.008	0.75
D		0.50		**4.25**		0.75		**9**		**76.50**		**2.5**
Granular ground application (0.75 lb ae/A)												
M	0.0375	**1.29**	0.375	**12.93**	*n/a*		0.0375	**7.5**	0.375	**75**	*n/a*	
D		0.42		**4.17**				**7.5**		**75**		

*Aerial applications are not being supported by the registrants, but are currently on existing labels.
Acute non-endangered and endangered LOC for terrestrial plants ≥ 1.0. n/a = not applicable
Bold = LOC exceedance. M = monocot D = dicot

RQs were also calculated for terrestrial plants exposed to 2,4-DP-p EHE based on a seedling emergence study, the most sensitive terrestrial plant study. Table 23 shows the EECs and RQs, with LOC exceedances identified in bold text, for terrestrial and semi-aquatic plants, reflecting estimates from runoff and drift exposures based on the various maximum single application rates.

Table 23. 2,4-DP-p EHE Terrestrial Plant RQs (Acute only)												
Scenario	Acute Non-endangered RQs						Acute Endangered RQs					
	Adjacent to treated sites		Semi-aquatic areas		Drift		Adjacent to treated sites		Semi-aquatic areas		Drift	
	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ	EEC	RQ
*Aerial spray application (6.0 lbs ae/A)**												
Monocot	0.60	**9.23**	3.30	**50.77**	0.30	**25.00**	0.60	**26.09**	3.30	**143.48**	0.30	**4.69**
Dicot		**15.79**		**86.84**		**27.27**		**75.00**		**412.50**		**333.33**
Ground spray application (6.0 lbs ae/acre)												
Monocot	0.36	**5.538**	3.06	**47.08**	0.06	**5.00**	0.36	**15.65**	3.06	**133.04**	0.06	0.94
Dicot		**9.47**		**80.53**		**5.45**		**45.00**		**382.50**		**66.67**
Granular ground application (6.0 lbs ae/A)												
Monocot	0.30	**4.62**	3.00	**46.15**	*n/a*		0.30	**13.04**	3.00	**130.43**	*n/a*	
Dicot		**7.89**		**78.95**	*n/a*			**37.50**		**375.00**	*n/a*	
Aerial spray application (0.75 lb ae/A)												
Monocot	0.075	**1.15**	0.413	**6.35**	0.038	**3.13**	0.075	**3.26**	0.413	**17.93**	0.038	0.59
Dicot		**1.97**		**10.86**		**3.41**		**9.38**		**51.56**		**41.67**
Ground spray application (0.75 lb ae/A)												
Monocot	0.045	**0.692**	0.38	**5.88**	0.0075	0.63	0.045	**1.96**	0.38	**16.63**	0.0075	0.12
Dicot		**1.18**		**10.07**		0.68		**5.63**		**47.81**		**8.33**
Granular ground application (0.75 lb ae/A)												
Monocot	0.038	**0.58**	0.38	**5.77**	*n/a*		0.038	**1.63**	0.38	**16.30**	*n/a*	
Dicot		**0.99**		**9.87**	*n/a*			**4.69**		**46.88**	*n/a*	

*Aerial applications are not being supported by the registrants, but are currently on existing labels.
Acute non-endangered and endangered LOC for terrestrial plants ≥ 1.0. n/a = not applicable
Bold = LOC exceedance. M = monocot D = dicot

b. Aquatic Organisms

Fish, amphibians, and aquatic invertebrates that live in aquatic environments are potentially exposed to 2,4-DP-p residues in surface water by direct contact of their integument, and via uptake through their gills or integument. Immediately following applications of 2,4-DP-p, the highest residue levels are expected to be located in surface waters adjacent to treated fields due to spray drift at the time of application and/or from runoff after a rain event. 2,4-DP-p has low persistence in some terrestrial environments; however, the likelihood of transport by runoff and leaching still exists. Although the Task Force is no longer supporting this application method, aerial applications and potential drift were assessed because they are still listed on some current product labels. Routes of exposure evaluated in the aquatic assessment focused on aerial applications, ground spray for ornamental turf, and granular applications for woody plant control. Because 2,4-DP-p EHE can persist in waters with an acidic to neutral pH, EPA assessed direct deposition of 2,4-DP-p EHE from aerial drift, runoff, and spray drift applications. The Agency predicted 2,4-DP-p EECs for aquatic ecosystems assessments using the Tier II PRZM/EXAMS models. PRZM is used to simulate pesticide transport as a result of runoff and erosion, and EXAMS considers the environmental date and transport of pesticides. The exposure values used in the ecological risk assessment are based on the "standard pond" scenario, intended to better represent the spatial and physical qualities of habitats relevant to risk

assessment for aquatic non-target organisms in ponds or streams that may be in or adjacent to treated areas. The resulting EECs predict high-end values of pesticide concentrations that may be found in ecologically sensitive environments following pesticide applications and, thus, represent conservative exposure estimates to which non-target organisms may be exposed. The EECs values determined for impact to non-target aquatic organisms are specific to ecological and fate properties in the respective scenarios assessed and, therefore, are different from those used to assess human health exposure in the drinking water assessment. Peak (1-in-10 year) surface water EECs were estimated based on applications made to Oregon Christmas trees and Florida turf (e.g., sod farm) scenarios.

Currently, the Agency does not have a model with which to predict concentrations of 2,4-DP-p in surface water from applications to home lawns, ornamental turf areas, or other grassy areas. Runoff from applications to these areas is expected to move over lawns and impervious surfaces to storm sewers and then to surface water. 2,4-DP-p applications predicted by PRZM/EXAMS modeling are sufficiently conservative to be representative of applications to turf, lawns, and other grass sites. Application rates, number of applications, and minimal retreatment intervals were based on the maximum values identified by the technical registrants in the 2,4-DP-p Task Force.

1. Fish and Invertebrates Assessment

A limited number of acute aquatic toxicity studies were submitted for both freshwater and marine/estuarine fish and invertebrates. Due to the lack of aquatic toxicity data, acute and chronic RQs were derived to estimate potential acute risk to the following: marine/estuarine fish and invertebrates, and chronic risk to both freshwater and marine/estuarine animals. These derived values are identified with an asterisk in Table 24. Derived toxicity endpoints are calculated by taking the largest acute-to-chronic ratio from available studies conducted with a similar chlorophenoxy herbicide, e.g., 2,4-D or MCPA, and dividing that ratio value by the respective acute or chronic toxicity value. Data were also unavailable for 2,4-DP-p EHE toxicity to fish and aquatic invertebrates. Compared to other chlorophenoxy herbicides, the general relationship between the acid and amine salts to the EHE suggests that the esters are more toxic by approximately two orders of magnitude. Thus, the respective acute or chronic toxicity value is divided by 100 to estimate to 2,4-DP-p EHE toxicity to the respective animal. Table 24 is a summary of aquatic toxicity studies the Agency used to evaluate risks from 2,4-DP-p acid, DMAS, and EHE.

Table 24. Summary of 2,4-DP-p Fish and Aquatic Invertebrates Toxicity Values.		
2,4-DP-p acid and DMAS		
Species	Acute Toxicity LC_{50}, MRID, Toxicity Category	Chronic Toxicity NOAEC
Freshwater fish Rainbow trout	>214 mg ae/L MRID 44580101 Practically non-toxic	14.7 mg ae/L*
Freshwater invertebrates Water flea	558 mg ae/L MRID 43867603 Practically non-toxic	74.9 mg ae/L*
Estuarine/marine fish	>142.7 mg ae/L*	>9.8 mg ae/L*
Estuarine/marine invertebrates	1,297 mg ae/L*	74.9 mg ae/L*
2,4-DP-p EHE		
Freshwater fish Bluegill sunfish	5.21 mg ae/L (direct deposition only) 42767004 Moderately toxic	0.147 mg ae/L* (direct deposition application only)
	>214 mg ae/L (aerial, ground, and granular applications) MRID 44580101 Practically non-toxic	
Freshwater invertebrates Water flea	5.58 mg ae/L (direct deposition only)*	0.749 mg ae/L*
	558 mg ae/L (aerial, ground, and granular applications) MRID 43867603 Practically non-toxic	
Estuarine/marine fish	>1.43 mg ae/L	0.098mg ae/L*
Estuarine/marine invertebrates	12.7 mg ae/L	0.749 mg ae/L*

*Because chemical-specific toxicity data were not available, the toxicity value was derived for this species.
mg ae/L = milligrams of acid equivalent per liter NOAEC = no observed adverse effects concentration

Freshwater Fish and Invertebrates

Similar to the way that RQs calculated for terrestrial organisms, aquatic acute RQs are derived by dividing the peak EECs by the LC_{50} for acute hazard. Acute RQs were not calculated for freshwater fish because no mortality occurred at the highest test levels, which are greater than the EECs. Chronic RQs for freshwater invertebrates are derived by dividing the 21-day EECs by the NOAEC values.

As no chronic data were available for freshwater fish, the Agency used derived toxicity values to estimate potential risk. Based on predicted modeling assessing both ground spray and granular applications, all acute RQs are <0.001 for freshwater fish and invertebrates, and chronic exposures to freshwater invertebrates do not exceed the Agency's LOCs.

Marine Fish and Invertebrates

Acute and chronic RQ values were derived from estimated values for marine/estuarine animals, as chemical-specific data on acute and chronic toxicity are not available. Using derived values, RQs for all modeled scenarios were <0.001 and did not exceed LOCs.

2. Aquatic Plants

Likewise for non-target fish and invertebrates, surface water concentrations were predicted using PRZM/EXAMS modeling assessing 2,4-DP-p applications to turf scenarios, considering aerial, ground spray, and granular applications. Aquatic plants toxicity data were available to determine potential toxicity of 2,4-DP-p acid and DMAS to non-target aquatic plants. Because there were no 2,4-DP-p EHE toxicity data conducted on aquatic plants, the Agency derived the toxicity values based on the magnitude of toxicity seen in similar chlorophenoxy herbicides. Table 25 summarizes the toxicity studies used to calculate RQs for aquatic plants.

Table 25. Summary of 2,4-DP-p Aquatic Plant Toxicity Studies.		
2,4-DP-p acid and DMAS Toxicity Values		
Species	EC_{50}	NOAEC
Non-Vascular, *Navicula pelliculosa*	0.077 mg ae/L	0.013 mg ae/L
Vascular, *Lemna gibba*	26.8 mg ae/L	1.57 mg ae/L
2,4-DP-p EHE Toxicity Values		
Vascular	2.68 mg ae/L*	n/a
Non-Vascular	0.007 mg ae/L*	n/a

* Because EHE-specific data were not available, the toxicity value was estimated for this species.

For vascular and nonvascular plants, peak EECs were compared to acute EC_{50} toxicity endpoints for the most sensitive plant species. RQs for endangered plants are calculated using the EC_{05} toxicity endpoint, as NOAECs could not be determined from available submitted data. There were no LOC exceedances for non-endangered aquatic plants at the LOC of 1. The only exceedance for endangered aquatic plants was for non-vascular plants, identified below in bold text; however, no non-vascular plants are listed as endangered or threatened. Table 26 summarizes the RQs for aquatic plants.

Table 26. Summary of Aquatic Plant RQs for Aerial*, Ground Spray, and Granular Applications of 2,4-DP-p						
Application Scenario		EECs	Vascular Plant RQs		Non-vascular Plant RQs	
			Non-endangered	Endangered	Non-endangered	Endangered
Non-crop Areas 6 lbs ae/A 1 application	A	.017	<0.001	0.01	0.22	**1.31**
	G	.00967	<0.001	0.006	0.13	0.74
	GR	.008	<0.001	0.005	0.10	0.62
Ornamental Turf 0.75 lb ae/A 2 applications	A	.00809	<0.001	0.005	0.12	0.62
	G	.00759	<0.001	0.005	0.10	0.58
	GR	.00747	<0.001	0.005	0.10	0.58
Ornamental Turf 0.75 lb ae/A 2 applications	A	.00469	<0.001	0.003	0.06	0.36
	G	.00399	<0.001	0.003	0.05	0.31
	GR	.00397	<0.001	0.003	0.05	0.31

*Aerial applications are not being supported by the registrants, but are currently on existing labels.
Acute non-endangered and endangered LOC for aquatic plants ≥ 1.0. Bold = LOC exceedance.
A = aerial G = ground GR = granular

c. Spray Drift

Although it is expected that the highest concentrations of 2,4-DP-p would occur in directly treated areas, spray drift adjacent to treated areas may still present the potential for exposures to non-target organisms. Exposures to non-target organisms include potential movement of 2,4-DP-p to off-target field surface soil, foliage, and insects. Spray drift into water bodies adjacent to treated areas can move to surface water, potentially affecting aquatic organisms.

Because 2,4-DP-p is an herbicide, a more in-depth spray drift exposure assessment utilizing Tier I AgDRIFT (version 2.01) modeling is also provided to better characterize potential exposure of terrestrial plants. The Agency used AgDRIFT to evaluate potential risk at several distances from the field, simulating typical applications with a low-boom sprayer. Based on the assessed turf scenario, predicted deposition away from the target area exceeded both non-endangered and endangered LOCs at the edge of the treated field (at zero feet). However, the amount of predicted deposition at 250 feet was less than the EC_{25} levels from plant toxicity studies and is below the acute LOCs at that distance. Therefore, applications made at 0.75 lb ae 2,4-DP-p/A on turf would result in deposition that would exceed the acute LOC only to a distance less than 250 feet. The amount of deposition at 250 feet is less than most no-effect levels, and therefore, below the endangered species LOC. However, a no-effect level for 2,4-DP-p DMAS could not be determined in the available vegetative vigor test for the most sensitive species (onion), so the distance to which endangered plants might be affected from this use cannot be definitely quantified. Spray drift deposition from an application at the maximum use rate (6.0 lbs ae 2,4-DP-p/A) indicated that the potential exceedance of the acute LOC for plants can occur at drift distances greater than 750 feet. However, the rate reduction and additional mitigation measures specified herein would reduce the amount potential spray drift to non-target areas.

d. Ecological Incidents

Ecological incidents are voluntarily reported to the Agency by local, state, other federal agencies, or at times, submitted under FIFRA section 6(a)2. The Ecological Incident Information System (EIIS) database contains ecological incidents that have been voluntarily submitted to EPA by state agencies. A review of the EIIS did not show any reported incidences that were caused by 2,4-DP-p.

IV. Risk Management and Reregistration Decision

A. Determination of Reregistration Eligibility

Section 4(g)(2)(A) of FIFRA calls for the Agency to determine, after submission of relevant data concerning an active ingredient, whether or not products containing the active ingredient are eligible for reregistration. The Agency has previously identified and required the submission of the generic (i.e., active ingredient-specific) data required to support reregistration of products containing 2,4-DP-p as an active ingredient. The Agency has completed its review of these generic data, and has determined that the data are sufficient to support reregistration of all products containing 2,4-DP-p.

The Agency has determined that 2,4-DP-p-containing products are eligible for reregistration provided that the risk mitigation measures outlined in section C of this document are adopted and label amendments are made to implement these mitigation measures, as outlined in Chapter V. Appendix A summarizes the uses of 2,4-DP-p that are eligible for reregistration. Appendix B identifies the generic data requirements that the Agency reviewed as part of its determination of reregistration eligibility of 2,4-DP-p, and lists the submitted studies that the Agency found acceptable. Data gaps are identified as generic data requirements that have not been satisfied with acceptable data. Should a registrant fail to implement any of the reregistration requirements identified in this document, the Agency may take regulatory action to address these concerns.

B. Public Comments and Responses

When making its reregistration decision, the Agency considered all comments received in the docket during the public participation phase. During the public comment period, which closed on June 25, 2007, the Agency received comments from interested stakeholders. These comments in their entirety are available in the public docket (EPA-HQ-OPP-2006-0944) at www.regulations.gov. The RED document, supporting documents for 2,4-DP-p, and the Agency's response to received comments are also available in the docket. In addition, the 2,4-DP-p RED document may be downloaded or viewed through the Agency's website at http://www.epa.gov/pesticides/reregistration/status.htm.

C. Risk Mitigation and Regulatory Position

Products containing 2,4-DP-p are eligible for reregistration provided that the following risk mitigation measures and label amendments are adopted accordingly. Table 27 summarizes the human and ecological risks of concern and the respective mitigation measure.

Table 27. 2,4-DP-p Human and Ecological Risk Mitigation Measures	
Risk of Concern	Mitigation Measures
Acute eye irritation (Toxicity Category I).	For any use (e.g., sod farms) for which the WPS applies, a 48-hour REI is required after applications of 2,4-DP-p.
	For early entry workers, protective eyewear must be worn in addition to baseline PPE.
Inhalation risk from occupational exposure.	There are risk concerns for mixers/loaders of liquid products containing 2,4-DP-p for aerial forestry applications. Because aerial applications of products containing 2,4-DP-p are prohibited, no further action is needed.
Occupational inhalation exposure risk.	For any use for which the WPS applies, mixers and loaders using wettable powder formulations must wear PF5 respirator (i.e., dustmask).
Non-target terrestrial exposures to animals and plants, including spray drift.	The maximum application rate for broadcast treatments is 0.75 lb ae 2,4-DP-p/A.
	For spot treatments only, the maximum use rate permitted is the equivalent to 2.0 lbs ae 2,4-DP-p/A, to be applied areas to no larger than 100 ft^2 per 5,000 ft^2.
	Aerial applications of products containing 2,4-DP-p are prohibited.
	Applications must be made using medium- to coarse-sized droplets.

lbs ae 2,4-DP-p/A = pounds of acid equivalent 2,4-DP-p per acre.

The following is a summary of the rationale for managing risks associated with the use of 2,4-DP-p.

1. Human Health Risk Management

The Agency has determined that based on currently registered uses of 2,4-DP-p there are no risks of concern for all residential (drinking water, handler, and post-application) exposures. All occupational scenarios are below the Agency's LOC except for 1) exposure to mixers/loaders of liquid products containing 2,4-DP-p for aerial forestry applications, and 2) occupational inhalation risks to mixer/loaders of wettable powders products containing 2,4-DP-p for turfgun applications. Because aerial applications are not supported, all aerial applications will be prohibited; and thus, mitigates the Agency's concern for occupational exposure from aerial forestry applications. For occupational inhalation risks to mixer/loaders of wettable powders products containing 2,4-DP-p, the use of a PF5 respirator (i.e., dust mask) or water-soluble bag packaging is required. As is expected of an acid, 2,4-DP-p acid is an acute Toxicity Category I eye irritant. In the absence of available acute eye toxicity data conducted with the respective 2,4-DP-p DMAS and 2,4-DP-p EHE, the Agency assumes a default Toxicity Category I. To address this concern, uses of 2,4-DP-p where the Worker Protection Standard guidelines apply will require a 48-hour REI after applications of 2,4-DP-p. Early entry workers must wear goggles in addition to baseline PPE.

2. Ecological Risk Management

Based on available toxicological data and refined use information, the ecological risk assessment identified some exposure scenarios with 2,4-DP-p that may pose ecological risks of concern to the Agency, including effects on endangered species. However, considering the assumptions made in the ecological assessment and additional proposed labeling mitigation measures refined conservative usage information, the Agency has determined that its current use patterns are eligible for reregistration. The following section is a summary for each respective affected organism identified earlier in Chapter III, as well as characterization of the actual usage of 2,4-DP-p versus the screening-level modeling estimates.

a. Terrestrial Organisms

Birds and Mammals

The ecological assessment identified potential risk to some non-target terrestrial animals. When considering the upper-bound residues on treated food items at the highest typical rate (0.75 lb ae 2,4-DP-p/A), EPA's avian assessment shows that there are some acute and chronic LOC exceedances based on granular and spray application scenarios. Exceedances were also identified for acute and chronic exposures based on the assessed food items for mammals. As expected, estimates for both acute and chronic RQs are greater when assessing spot treatments at the highest application rate of 6.0 lbs ae 2,4-DP-p/A. There are some conservative assumptions made in the acute and chronic risk assessments that may have overestimated potential terrestrial risks. First, both the dose-based and dietary-based assessments presumed that the animal's diet is comprised of 100% of treated foodstuff (i.e., plant foliage, insects, fruit, and seeds) with upper-bound residues. Typically, wildlife organisms consume a variety of foodstuff from various locations, rather than from a single location. Assuming mean residues, many of the acute and chronic RQs no longer exceeded the LOCs, with the exception of some small-sized birds or mammals. Also, due to the lack of a foliar dissipation study, the Agency used the default foliar dissipation half-life of 35 days, resulting in the greatest 2,4-DP-p residues on food items.

To reduce the amount of 2,4-DP-p residues in a given area, application rates have been reduced and the highest concentration rate has been further restricted to specific types of applications (spot treatments). For broadcast treatments (primarily to lawns and other ornamental turf), with the exception of spot treatment use, the maximum application rate permitted is 0.75 lb ae 2,4-DP-p/A (used during greater weed infestation). Typical application rates range from 0.25 - 0.50 lb ae 2,4-DP-p/A, which further reduces the amount of residues in a treated area. The application rate for spot treatments has been reduced to 2.0 lbs ae 2,4-DP-p/A and is restricted to application areas no greater than 1,000 ft^2 per acre. These reduced rates and more restrictive use patterns effectively reduce the amount of residues available to birds and mammals. Reducing the area treated in spot treatments also decreases the likelihood of animals consuming 100% of foodstuff from a treated area, as the model assumes. Refer to Table 28 for additional specific labeling language.

Terrestrial Plants

There are some risks of concern to the Agency for effects to non-target terrestrial plants. The highest RQ estimates for effects to terrestrial plants resulted from combined runoff and drift; however, the majority of RQs exceeded the LOCs even for drift alone at the typical application rate (0.75 lb ae 2,4-DP-p/A). As conservative assumptions were made in the assessment, some RQ estimates may be overestimating potential risks. The majority of 2,4-DP-p usage is applied to residential lawns, which are typically adjacent to other lawns, rather than wetlands or other habitats of non-target plants that are used in the models. Because the predominant use of 2,4-DP-p products are on residential turf, 2,4-DP-p movement from a treated area is more likely to move onto adjacent hard surfaces (i.e., sidewalks and streets) and into storm sewers or receiving water bodies, rather than to an adjacent wetland or wild habitat as presumed in the model. Additional assumptions that may overestimate the potential amount of 2,4-DP-p transported via runoff and drift are as follows: a maximum use rate of 6.0 lbs ae 2,4-DP-p/A and the highest typical application rate of 0.75 ae 2,4-DP-p/A; a default half-life of 35 days in the modeling; assuming exposure to terrestrial plants from an application applied to one hectare; and exposure to semi-aquatic plants based on a 10 hectare application.

Specific to spray drift, risk is estimated in two ways: the amount of pesticide that could be deposited onto non-target plant surfaces and the distance from the target application area where pesticide drift could occur. Droplet size can influence the distance a pesticide drifts from the target area. Spray drift was assessed based on fine to medium-coarse droplet sizes that can occur from aerial applications and/or those made using a high ground boom (four feet above the canopy). Most applications are made using handheld or broadcast sprayers, such as hand-wand sprayers, Ready-to-Use, and hose-end liquid products. These application methods produce a coarser droplet size and are applied closer (15 - 30 inches) to the ground, rather than applications made with a high boom sprayer. Furthermore, the registrants are not supporting aerial applications of 2,4-DP-p. Applications made to a residential lawn are more likely to drift to adjacent lawns, rather than onto a wetland or wild habitat as presumed in the model. Because the majority of 2,4-DP-p usage is applied to ornamental turf, the likelihood of the drift movement is to similar turf areas. Likewise in the runoff assessment, the reduction in rates, restricting droplet size to medium- to coarse-sized droplets, and prohibiting aerial application will reduce the amount of 2,4-DP-p deposited via spray drift.

Even considering all these factors that could over-estimate movement of runoff and drift onto non-target areas, there are still risks of concern for non-target plants, specifically in or next to golf courses, adjacent to sod farms, and forests. To reduce the potential for non-target exposures, the Agency is imposing rate reductions to 0.75 lb ae 2,4-DP-p for broadcast treatments. Spot treatments are restricted to applications no greater than 1,000 ft^2/A at the maximum rate of 2.0 lbs ae 2,4-DP-p/A; thus, the 2.0 lbs ae 2,4-DP-p/A rate would not be applied to an entire acre. Because spot treatments are expected to be very small treatment areas (no greater than 100 ft^2 per 5,000 ft^2), concentrated products (liquid and soluble) will have dilution directions for the respective broadcast or spot treatments that specify the quantity (volume) of diluted solution for the respective size of the treatment area. Applying liquid products using medium-to-coarse droplets reduces the amount of spray drift from target areas. Aerial applications would result in the greatest distance of spray drift away from the target area;

however, registrants are no longer supporting this application. Thus, aerial applications will be prohibited for products containing 2,4-DP-p. With the implementation of these mitigation measures and labeling requirements, movement of 2,4-DP-p to non-target areas will be reduced. The Agency has conducted this assessment with the available vegetative vigor and seedling emergence studies that were conducted using the technical product. To confirm the Agency's assumption that the toxicity of the end-use product is the same as the technical product, EPA is requiring additional seedling emergence and vegetative vigor studies conducted with the end-use product containing 2,4-DP-p. Refer to Table 28 for the mitigation measures required respective to the risks of concern and Table 29 for specific labeling language.

b. Aquatic Organisms

Fish and Aquatic Invertebrates

Based on available acute toxicity data, there are no exceedances of the Agency's LOCs for fish and aquatic and aquatic invertebrates. Although no chemical-specific data were available to assess potential chronic risks to fish and aquatic invertebrates, the Agency compared potential chronic effects to aquatic animals based on available data conducted with other chlorophenoxy compounds. Based on available chronic data on fish and invertebrates in freshwater and marine/estuarine environments, 2,4-D poses low potential for chronic toxicity. Additionally, 2,4-DP-p exhibits low acute toxicity potential to fish and other aquatic animals. Thus, no additional data is needed at this time.

Aquatic Plants

Based on available data for aquatic plants, there are no risks of concern to the Agency with the exception of one exceedance identified for endangered non-vascular plants. The LOC was exceeded for non-vascular plants based on an aerial application scenario applying 6.0 lbs ae 2,4-DP-p/A. In addition to the reduction in the maximum application rate to 2.0 lbs ae 2,4-DP-p/A, aerial applications will be prohibited for products containing 2,4-DP-p. Thus, there are no longer any exceedances of concern for non-vascular plants. Thus, no mitigation is needed at this time.

c. Endangered Species

The Agency has developed the Endangered Species Protection Program to identify pesticides whose use may cause adverse impacts on endangered and threatened species and to implement mitigation measures that address these impacts. The Endangered Species Act (ESA) requires federal agencies to ensure that their actions are not likely to jeopardize listed species or adversely modify designated critical habitat. To analyze the potential of registered pesticide uses that may affect any particular species, EPA uses basic toxicity and exposure data and considers ecological parameters, pesticide use information, geographic relationship between specific pesticide uses and species locations, and biological requirements and behavioral aspects of the particular species. When conducted, these analyses take into consideration any regulatory changes recommended in this RED being implemented at that time.

The ecological assessment that EPA conducted for this RED does not, in itself, constitute a determination as to whether specific species or critical habitat may be harmed by the pesticide. Rather, this assessment serves as a screen to determine the need for any species-specific assessment that will evaluate whether exposure may be at levels that could cause harm to specific listed species and their critical habitat. The species-specific assessment refines the screening-level assessment to take into account information such as the geographic area of pesticide use in relation to the listed species and the habits and habitat requirements of the listed species. If the Agency's specific assessments for 2,4-DP-p result in the need to modify use of the pesticide, any geographically specific changes to the pesticide's registration will be implemented through the process described in the Agency's Federal Register Notice (54 FR 27984) regarding implementation of the Endangered Species Protection Program.

Based on EPA's screening level assessment for 2,4-DP-p, RQs exceed the LOCs for mammals, birds, and terrestrial plants. Additionally, chronic effects to fish and aquatic invertebrates cannot be precluded from concern for potentially affected endangered species. However, these findings are based solely on EPA's screening-level assessment and do not constitute "may affect" findings under the ESA. A determination that there is a likelihood of potential effects to a listed species may result in limitations on the use of the pesticide, other measures to mitigate any potential effects, and/or consultations with the Fish and Wildlife Service or National Marine Fisheries Service, as necessary. If the Agency determines use of 2,4-DP-p "may affect" listed species or their designated critical habitat, EPA will employ the provisions in the Services regulations (50 CFR Part 402). The Agency is requiring additional data to further characterize and refines its ecological and endangered species risk assessments.

D. Labeling Requirements

In order to be eligible for reregistration, various use and safety information will be included in the labeling of all end-use products containing 2,4-DP-p. For the specific labeling statements, refer to Table 28 of this RED document.

E. Import Tolerance

2,4-DP-p is not registered for any food uses in the United States. The Agency is aware of the use of 2,4-DP-p on food commodities, specifically on grains, in Europe and Canada. The 2,4-DP-p Task Force provided data to the Pest Management Regulatory Agency (PMRA) in Canada that showed all grain samples collected at normal crop maturity showed no detectable residues (<0.005 ppm) of 2,4-DP-p. Therefore, no import tolerance is required.

F. Endocrine Disruption

EPA is required under the FFDCA, as amended by FQPA, to develop a screening program to determine whether certain substances (including all pesticide active and other ingredients) *"may have an effect in humans that is similar to an effect produced by a naturally occurring estrogen, or other such endocrine effects as the Administrator may designate."* Following the recommendations of its Endocrine Disruptor Screening and Testing Advisory Committee (EDSTAC), EPA determined that there were scientific bases for including, as part of

the program, androgen and thyroid hormone systems, in addition to the estrogen hormone system. EPA also adopted EDSTAC's recommendation that the Program include evaluations of potential effects in wildlife. When the appropriate screening and/or testing protocols being considered under the Agency's Endocrine Disrupter Screening Program (EDSP) have been developed and vetted, 2,4-DP-p may be subjected to additional screening and/or testing to better characterize effects related to endocrine disruption.

V. What Registrants Need to Do

For 2,4-DP-p technical-grade active ingredient products, registrants need to submit the following items.

Within 90 days from receipt of the generic data call-in (GDCI):

(1) completed response forms to the GDCI (i.e., DCI response form and requirements status and registrant's response form); and

(2) submit any time extension and/or waiver requests with a full written justification.

Within the time limit specified in the GDCI, cite any existing generic data which addresses data requirements or submit new generic data responding to the GDCI. Please contact Rosanna Louie at (703) 308-0037 with questions regarding generic reregistration and/or the DCI. All materials submitted in response to the GDCI should be addressed:

By U.S. mail:
Document Processing Desk (DCI/SRRD)
Rosanna Louie
U.S. EPA (7508P)
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

By express or courier service:
Document Processing Desk (DCI/SRRD)
Rosanna Louie
U.S. EPA (7508P)
2777 South Crystal Drive
Arlington, VA 22202

For end-use products containing the active ingredient 2,4-DP-p, registrants need to submit the following items for each product.

Within 90 days from receipt of the product-specific data call-in (PDCI):

(1) completed response forms to the PDCI (i.e., DCI response form and requirements status and registrant's response form); and

(2) submit any time extension and/or waiver requests with a full written justification.

Within eight months from receipt of the PDCI:

(1) submit two copies of the confidential statement of formula, EPA form 8570-4;

(2) a completed original application for reregistration (EPA form 8570-1). Indicate on the form that it is an "application for reregistration";

(3) five copies of the draft label incorporating all label amendments outlined in Table 27 of this document;

(4) a completed form certifying compliance with data compensation requirements (EPA Form 8570-34);

(5) if applicable, a completed form certifying compliance with cost share offer requirements (EPA Form 8570-32); and

(6) the product-specific data responding to the PDCI.

Please contact Bonnie Adler at 703-308-8523 with questions regarding product reregistration and/or the PDCI. All materials submitted in response to the PDCI should be addressed:

By U.S. mail:
Document Processing Desk (DCI/SRRD)
Bonnie Adler
U.S. EPA (7508P)
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

By express or courier service:
Document Processing Desk (DCI/SRRD)
Bonnie Adler
U.S. EPA (7508P)
2777 South Crystal Drive
Arlington, VA 22202

A. Manufacturing Use Products

1. Additional Generic Data Requirements

The generic database supporting the reregistration of 2,4-DP-p for currently registered uses has been reviewed and determined to be substantially complete. However, confirmatory data is required in some instances. The Agency has conducted this assessment with the available vegetative vigor and seedling emergence studies that were conducted using the technical product. To confirm the Agency's assumption that the toxicity of the end-use product is the same as the technical product, EPA is requiring additional seedling emergence and vegetative vigor studies conducted with the end-use product containing 2,4-DP-p, and these are listed below.

OPPTS Guideline Number		Study, Test Species
(old)	(new)	
Not available	830.7050	UV/Visible Absorption
123-1(a)	850.4225	Seedling germination/seedling emergence (Tier II)
123-1(b)	850.4250	Vegetative Vigor (Tier II)

2. Labeling for Manufacturing-Use Products

To ensure compliance with FIFRA, manufacturing-use product (MUP) labeling should be revised to comply with all current EPA regulations, PR Notices, and applicable policies. The MUP labeling should bear the specific labeling language shown in Table 28.

B. End-Use Products

1. Additional Product-Specific Data Requirements

Section 4(g)(2)(B) of FIFRA calls for the Agency to obtain any needed product-specific data regarding the pesticide after a determination of eligibility has been made. The Registrant must review previous data submissions to ensure that they meet current EPA acceptance criteria and if not, commit to conduct new studies. If a registrant believes that previously submitted data meet current testing standards, then the study MRID numbers should be cited according to the instructions in the Requirement Status and Registrants Response Form provided for each product. The Agency intends to issue a separate product-specific data call-in (PDCI), outlining specific data requirements. For any questions regarding the PDCI, please contact Bonnie Adler at 703-308-8523.

2. Labeling for End-Use Products

To be eligible for reregistration, labeling changes are necessary to implement measures outlined in Section IV above. Specific language to incorporate these changes is specified in Table 28. Generally, conditions for the distribution and sale of products bearing old labels/labeling will be established when the label changes are approved. However, specific existing stocks time frames will be established case-by-case, depending on the number of products involved, the number of label changes, and other factors.

C. Labeling Changes Summary Table

In order to be eligible for reregistration, amend all product labels to comply with the following table. Table 28 shows how language on the labels should be amended.

Table 28. 2,4-DP-p Labeling Requirements Table		
Description	Dichlorprop-p (2,4-DP-p): Required Labeling Language	Placement on Label
Manufacturing-Use Products		
For all Manufacturing Use Products	"Only for formulation as an ***herbicide*** for the following use(s) [fill blank only with those uses that are being supported by MP registrant]." "Only for formulation into end-products with directions for use that prohibit aerial application." "Only for formulation into end-products with directions for use that prohibit broadcast applications greater than 0.75 lb ae 2,4-DP-p/A." "Only for formulation into end-use products with directions for use that prohibit spot treatment applications greater than 2.0 lbs ae 2,4-DP-p/A." Must only be formulated into Ready-to-Use spray containers that produce droplets that are medium or coarse in size according to the ASAE (S572) definition for standard nozzles.	Directions for Use
One of these statements may be added to a label to allow reformulation of the product for a specific use or all additional uses supported by a formulator or user group.	"This product may be used to formulate products for specific use(s) not listed on the MP label if the formulator, user group, or grower has complied with U.S. EPA submission requirements regarding support of such use(s)." "This product may be used to formulate products for any additional use(s) not listed on the MP label if the formulator, user group, or grower has complied with U.S. EPA submission requirements regarding support of such use(s)."	Directions for Use
Environmental Hazards Statements Required by the RED and Agency Label Policies	"Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."	Directions for Use
End-Use Products Intended for Occupational Use (WPS and Non-WPS)		

PPE Requirements Established by the RED for all formulations except for wettable powder, granular, and Ready-to-Use formulations	"Personal Protective Equipment (PPE) All mixers, loaders, applicators, and other handlers must wear the following PPE: - long-sleeved shirt and long pants, and - shoes plus socks."	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals
PPE Requirements Established by the RED for wettable powder formulations	"Personal Protective Equipment (PPE) All mixers, loaders, applicators, and other handlers must wear the following PPE: - long-sleeved shirt and long pants, and - shoes plus socks." "In addition, mixers and loaders supporting handgun applications must wear a NIOSH-approved dust/mist filtering respirator with NIOSH/MSHA approval number prefix TC-21C or a NIOSH-approved respirator with any N**, R, P or HE filter." * ***Instruction to Registrant:*** Drop the "N" type prefilter from the respirator statement, if the pesticide product contains, or is used with, oil. See engineering controls statements for exceptions to these requirements.	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals
PPE Requirements Established by the RED for granular formulations	"Personal Protective Equipment (PPE) All loaders, applicators, and other handlers must wear the following PPE: - long-sleeved shirt and long pants, and - shoes plus socks."	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals
PPE Requirements Established by the RED for Ready-to-Use formulations	"Personal Protective Equipment (PPE) All applicators and other handlers must wear the following PPE: - long-sleeved shirt and long pants, and - shoes plus socks."	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals

Engineering Controls for wettable powder products	"Engineering Controls Water-soluble packets when used correctly qualify as a closed mixing/loading system under the Worker Protection Standard for Agricultural Pesticides [40 CFR 170.240(d)(4)]. Mixers and loaders using water-soluble packets must : -- wear long-sleeved shirt, long pants, and shoe plus socks, and -- if they are supporting handgun applications, be provided and must have immediately available for use in an emergency, such as a broken package, spill, or equipment breakdown: a NIOSH-approved dust/mist filtering respirator with NIOSH/MSHA approval number prefix TC-21C or a NIOSH-approved respirator with any N**, R, P or HE filter." * ***Instruction to Registrant:*** Drop the "N" type prefilter from the respirator statement, if the pesticide product contains, or is used with, oil.	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals
Restricted Entry Interval for products with WPS uses	"Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours."	Directions for Use, Agricultural Use Requirements Box
Early Entry Personal Protective Equipment for products with WPS uses	"PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is as follows: - coveralls, - shoes plus socks, - chemical-resistant gloves made of any waterproof material, and - protective eyewear."	Directions for Use, Agricultural Use Requirements Box
General Application Restrictions	"Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application."	Place in the Direction for Use directly above the Agricultural Use Box.
Entry Restrictions for Non-WPS Uses for Products Applied as a Spray	"Do not enter or allow entry until sprays have dried."	Directions for Use Under General Precautions and Restrictions. If the product also contains WPS uses, then create a Non-Agricultural Use Requirements box as directed in PR Notice 93-7 and place the appropriate statement inside that box.

Entry Restrictions for Non-WPS Uses for Granular Products	If the product does not have instructions for watering in, include the following statement: "Do not enter or allow entry to the treated area until dusts have settled." If the product has instructions for watering in, include the following statement: "Do not enter or allow entry to the treated areas (except those involved in the watering) until the watering in is complete and the surface is dry."	Directions for Use Under General Precautions and Restrictions. If the product also contains WPS uses, then create a Non-Agricultural Use Requirements box as directed in PR Notice 93-7 and place the appropriate statement inside that box.
User Safety Requirement	"Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry." "Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them."	Precautionary Statements: Hazards to Humans and Domestic Animals Immediately following the PPE requirements
User Safety Recommendations	"USER SAFETY RECOMMENDATIONS" "Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet." "Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing." "Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing."	Precautionary Statements: Hazards to Humans and Domestic Animals immediately following Engineering Controls (Must be placed in a box.)
Environmental Hazard Statement	"This pesticide may adversely affect non-target plants. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters or rinsate. This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater."	Precautionary Statements immediately following the User Safety Recommendations

Other Application Restrictions (Risk Mitigation) (Note: The maximum allowable application rate and maximum allowable rate per year must be listed as pounds or gallons of formulated product per acre or per 1,000 square feet, not just as pounds acid equivalent per acre.)	**For broadcast treatments:** Limited to 2 applications per year. Maximum of 0.75 lb ae 2,4-DP-p/A per application (or the respective lb ae 2,4-DP-p/1,000 ft^2). Minimum of 30 days between applications." **For spot treatments for all use sites:** Limited to 2 applications per year. Maximum of 2.0 lbs ae 2,4-DP-p/A per application (or the respective lb ae 2,4-DP-p/1,000 ft^2). Minimum of 30 days between applications. Broadcast application is prohibited at this use rate." Spot treatment is defined as a treatment area no greater than 1,000 ft^2 per acre.	Directions for Use Associated with the Specific Use Pattern
Other Application Restrictions	"Aerial application of this product is prohibited."	Directions for Use under Other Use Precautions
General Application Restrictions	"Do not use this product on or near desirable plants, including within the dripline of the roots of desirable trees and shrubs, since injury may result."	Directions for Use under Other Use Precautions

Spray Drift Management	"SPRAY DRIFT MANAGEMENT" "A variety of factors including weather conditions (e.g. wind direction, wind speed, temperature, relative humidity) and method of application (e.g. groundboom, sprayer) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product." Droplet Size: "Use only Medium or coarser spray nozzles according to ASAE (S572) definition for standard nozzles." Wind Speed "Do not apply at wind speeds greater than 10 mph." Temperature Inversions: "If applying at wind speeds less than 3 mph, the applicator must determine if 1) conditions of temperature inversion exist, or 2) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions." Additional Requirements for groundboom application: "Do not apply with a nozzle height greater than four feet above the target site."	Directions for Use under Use Precautions
End-Use Products Intended for Residential Use		
Application Restrictions	"Do not apply this product in a way that will contact any person or pet, either directly or through drift. Keep people and pets out of the area during application."	Directions for use under General Precautions and Restrictions
Entry Restrictions for products applied as a spray	"Do not allow people or pets to enter the treated area until sprays have dried."	Directions for use under General Precautions and Restrictions

Entry Restrictions for granular formulations	If the product does not have instructions for watering in: "Do not allow people or pets to enter the treated area until dusts have settled." If the product has instructions for watering in: "Do not enter or allow others (including children or pets) to enter the treated areas (except those involved in the watering) until the watering-in is complete and the surface is dry."	Directions for use under General Precautions and Restrictions
Environmental Hazard Statement for Residential Use labels	"This pesticide may adversely affect non-target plants. Do not apply directly to water. Do not contaminate water when disposing of equipment wash waters or rinsate."	Precautionary Statements immediately following the User Safety Recommendations
Other Application Restrictions	See the "General Application Restrictions" listed above for requirement for all products. In addition also add: "Do not apply as a fine mist because of potential injury to desirable plants."	Directions for Use under Other Use Precautions

Other Application Restrictions	**Requirements for Granular Formulations:** "Do not apply directly to or near water, storm drains, gutters, sewers, or drainage ditches. Do not apply within 25 feet of rivers, fish ponds, lakes, streams, reservoirs, marshes, estuaries, bays, and oceans. Do not apply when windy. Apply this product directly to your lawn or garden, and sweep any product landing on the driveway, sidewalk, gutter, or street, back onto the treated area. To prevent product run-off, do not over water the treated area to the point of runoff or apply when raining or when rain is expected that day." **Requirements for Liquid and Dust products (excludes Ready to Use Products):** "Do not apply directly to or near water, storm drains, gutters, sewers, or drainage ditches. Do not apply within 25 feet of rivers, fish ponds, lakes, streams, reservoirs, marshes, estuaries, bays, and oceans. Do not apply when windy. To prevent product run-off, do not over water the treated area(s) to the point of runoff or apply when raining or when rain is expected that day. Rinse applicator over lawn or garden area only." **Requirements for Ready to Use Formulations labeled or intended for outdoor use:** "Do not apply directly to or near water, storm drains, gutters, sewers, or drainage ditches. Do not apply within 25 feet of rivers, fish ponds, lakes, streams, reservoirs, marshes, estuaries, bays, and oceans. Do not apply when windy. To prevent product run-off, do not over water to the point of runoff, or apply when raining or when rain is expected that day."	Directions for Use under Other Use Precautions

APPENDIX A. Use Patterns Eligible for Reregistration

Table of 2,4-DP-p Use Patterns Eligible for Reregistration (Case #0249)							
Use Site	Formulations	Typical Application Rate	Maximum Application Rate	Restrictions	Timing	Restricted Entry Interval	Application Equipment
Ground Broadcast Treatments to: residential turf, ornamental turf (e.g., golf courses, cemeteries, parks, sports fields, and turfgrass), sod farms, and uncultivated non-agricultural areas (e.g., roadsides and rights-of-ways)	**2,4-DP-p acid:** granular, emulsifiable concentrate, water-soluble dry concentrate, and wettable powder **2,4-DP-p DMAS:** granular, water-soluble liquid concentrate, and water-soluble concentrate dry **2,4-DP-p EHE:** granular and emulsifiable concentrate	0.20 - 0.50 lb ae/A	0.75 lb ae/A	Maximum of 2 applications per year	Post-emergence	48 hours	Boom sprayer, handheld nozzle sprayer, wand sprayer, knapsack sprayer, and granular spreader
Spot Treatments (for woody plants and brush management) in uncultivated non-agricultural areas (e.g., utility power lines, hedgerows, industrial sites, ditches, airports, and fence rows)		Not applicable	Concentration equivalent up to 2.0 lbs ae/A	- Treatment areas no greater than 100 feet (linear or square feet)/A - Maximum of 2 applications per year			Handheld nozzle sprayer, wand sprayer, knapsack sprayer, and granular spreader

lb ae/A = pound of acid equivalent per acre

APPENDIX B. Data Supporting Guideline Requirements for 2,4-DP-p

Data Supporting Guideline Requirements for the Reregistration of Dichlorprop-p (2,4-DP-p)				
PRODUCT CHEMISTRY				
New Guideline Number	**Old Guideline Number**	**Study Description**	**Use Pattern**	**Citation(s)**
830.1550	61-1	Product Identity and Composition	All	
830.1600	61-2a	Starting Materials & Manufacturing Process	All	
830.1670	61-2b	Formation of Impurities	All	
830.1700	62-1	Preliminary Analysis	All	
830.1750	62-2	Certification of limits	All	
830.1800	62-3	Analytical Method	All	
830.6302	63-2	Color	All	46591916
830.6303	63-3	Physical State	All	46591916
830.6304	63-4	Odor	All	46591916
830.7050	None	UV/Visible Absorption	All	
830.7200	63-5	Melting Point	All	46591916
830.7220	63-6	Boiling Point	All	
830.7300	63-7	Density	All	
830.7840 830.7860	63-8	Solubility	All	46591916
830.7950	63-9	Vapor Pressure	All	46591916
830.7370	63-10	Dissociation Constant	All	42845001
830.7550	63-11	Octanol/Water Partition Coefficient	All	42916202
830.7000	63-12	pH	All	
830.6313	63-13	Stability	All	46591916
830.6314	63-14	Oxidizing/Reducing Action	All	
830.6315	63-15	Flammability	All	
830.6316	63-16	Explodability	All	
830.6317	63-17	Storage Stability	All	
830.7100	63-18	Viscosity	All	
830.6319	63-19	Miscibility	All	
830.6320	63-20	Corrosion characteristics	All	
ECOLOGICAL EFFECTS				
850.2100	71-1a	Avian Acute Oral Toxicity – Quail	All	42987901 43867601 44090001
850.2200	71-2a	Avian Dietary Toxicity - Quail	All	43220201 43220202 43227401 43227402 43811401

Data Supporting Guideline Requirements for the Reregistration of Dichlorprop-p (2,4-DP-p)				
850.2200	71-2b	Avian Dietary Toxicity - Duck	All	43227401 43220202
850.2300	71-4a	Avian Reproduction - Quail	All	46879201 - supplemental
850.1075	72-1a	Fish Toxicity Bluegill	All	42767002 42767004 44580101
850.1075	72-1c	Fish Toxicity Rainbow Trout	All	42767001 42767003
850.1010	72-2a	Invertebrate Toxicity - Water flea	All	42971101 43867603 44030301 46613901 - supplemental
850.5400	122-2	Aquatic Plant Growth	All	42665701
850.4225	123-1a	Seed Germ./ Seedling Emergence	All	43016702 - supplemental 43279202 (oat) - supplemental
850.4250	123-1b	Vegetative Vigor	All	43525801 Note: additional data needed conducted with end-use product 43016701 - supplemental 43016702 - supplemental 43279201 (corn) - supplemental
850.4400	123-2	Aquatic Plant Growth	All	42595901 42595902 42665701 42681001 46856701
TOXICOLOGY				
870.1100	81-1	Acute Oral Toxicity-Rat	All	40955602 42614601 42614602 42985308
870.1200	81-2	Acute Dermal Toxicity-Rabbit	All	40955603 42614603 42614604 42985309
870.1300	81-3	Acute Inhalation Toxicity-Rat	All	41231201 42914501 42937001 42985310
870.2400	81-4	Primary Eye Irritation-Rabbit	All	40955605 42729101 42985311
870.2500	81-5	Primary Skin Irritation	All	40955604 42729102 42729103 42985312

Data Supporting Guideline Requirements for the Reregistration of Dichlorprop-p (2,4-DP-p)				
870.2600	81-6	Dermal Sensitization	All	40982202 42955401 43749701 43749702 43749703
870.6200	81-8-SS	Acute Neurotoxicity Screen	All	43770901 43915101
870.3100	82-1a	90-Day Feeding - Rodent	All	00116494 00250351 41653801 43103201 43915101
870.3150	82-1b	90-Day Feeding - Non-rodent	All	43462601 43103201
870.3200	82-2	21-Day Dermal - Rabbit/Rat	All	42914301 43706401 43634401
870.6200	82-7	Neurotoxicity Screening Battery	All	43915101
870.4100	83-1a	Chronic Feeding Toxicity - Rodent	All	00146394
870.4100	83-1b	Chronic Feeding Toxicity - Non-Rodent	All	44638401
870.4200	83-2a	Oncogenicity - Rat	All	00146394
870.4200	83-2b	Oncogenicity - Mouse	All	44888201 44900801
870.3700	83-3a	Developmental Toxicity - Rat	All	42845805
870.3700	83-3b	Developmental Toxicity - Rabbit	All	42845804
870.3800	83-4	2-Generation Reproduction - Rat	All	46721401 (racemic 2,4-DP) 46591904
870.4300	83-5	Combined Chronic Toxicity/ Carcinogenicity	All	00146394
870.5140	84-2a	Gene Mutation (Ames Test)	All	42985313 42985315 42985316 42860301 42860303 44900802
870.5375	84-2b	Structural Chromosomal Aberration	All	40581901 41646803 42985314 43189401
None	84-4	Other Genotoxic Effects	All	42985314 44900802 43113301 42937005
870.7485	85-1	Metabolism and Pharmacokinetics	All	00116493 44187601 44187602
OCCUPATIONAL/RESIDENTIAL EXPOSURE				

Data Supporting Guideline Requirements for the Reregistration of Dichlorprop-p (2,4-DP-p)				
835.2110	161-1	Hydrolysis as a function of pH	All	46591911
835.2120	161-1	Hydrolysis	All	42683001 42917601 42937006
835.2240	161-2	Photodegradation - Water	All	43101501
835.2410	161-3	Photodegradation - Soil	All	42899601
835.2370	161-4	Photodegradation - Air	All	Not required
835.4100	162-1	Aerobic Soil Metabolism	All	42935301
835.1240	163-1	Leaching/Adsorption/Desorption	All	44028901
835.6100	164-1	Terrestrial Field Dissipation	All	44130103
None	165-4	Bioaccumulation in Fish	All	Not Required
OTHER				
850.3020	141-1	Honey Bee Acute Contact	All	42204601 42621801 46591910

APPENDIX C. Technical Support Documents

Additional documentation in support of the 2,4-DP-p RED is maintained in the OPP Regulatory Public Docket, located in Room S-4400 One Potomac Yard (South Building), 2777 S. Crystal Drive, Arlington, VA. It is open Monday through Friday, excluding legal holidays, from 8:30 a.m. to 4:00 p.m. All documents may be viewed in the OPP Docket room or viewed and/or downloaded via the Internet at http://www.regulations.gov. The Agency's documents in support of this RED include the following:

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APPENDIX E. Generic Data Call-in (GDCI)

United States Environmental Protection Agency Washington, D.C. 20460

DATA CALL-IN RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP Chemical # and Name 031402 Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-	DD-MMM-YYYY GENERIC ID # GDCI-031402-NNNNN

4. EPA Product Registration	5. I wish to cancel this product registration voluntarily	6. Generic Data		7. Product Specific Data	
		6a. I am claiming a Generic Data Exemption because I obtain the active ingredient from the source EPA registration number listed below.	6b. I agree to satisfy Generic Data requirements as indicated on the attached form entitled "Requirements Status and Registrant's Response."	7a. My product is an MUP and I agree to satisfy the MUP requirements on the attached form entitled "Requirements Status and Registrant's Response."	7b. My product is an EUP and I agree to satisfy the EUP requirements on the attached form entitled "Requirements Status and Registrant's Response."
NNNNNN-NNNNN				N.A.	N.A.

8. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law.

Signature and Title of Company's Authorized Representative_____

9. Date

10. Name of Company

11. Phone Number

United States Environmental Protection Agency Washington, D.C. 20460

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address

SAMPLE COMPANY
NO STREET ADDRESS
NO CITY, XX 00000

2. Case # and Name

0294 2,4-DP
Chemical # and Name 031402
Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-

3. Date and Type of DCI and Number

DD-MMM-YYYY
GENERIC
ID # GDCI-031402-NNNNN

4. Guideline Requirement Number	5. Study Title	PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
	Nontarget Plant Protection Data Requirements (Conventional Chemical)								
850.4225	Seedling emergence, Tier II (1 ,2 ,3 ,4)					C, HH, II, J, K, Q, R, T, U	TEP	12	
850.4250	Vegetative vigor, Tier II (5 ,6 ,7 ,8 ,9)					C, HH, II, J, K, Q, R, T, U	TEP	12	
	Product Chemistry Data Requirements (Conventional Chemical								
830.7050	UV/Visible absorption					C, HH, II, J, K, Q, R, T, U	TGAI/PAI	8	

10. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law

Signature and Title of Company's Authorized Representative_____

11. Date

12. Name of Company

13. Phone Number

United States Environmental Protection
Agency Washington, D.C. 20460

FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

Case # and Name: 0294 2,4-DP

DCI Number: GDCI-031402-NNNNN

Key: TEP = Typical End Use Product [TEP]; TGAI/PAI = Technical Grade Active Ingredient, Pure Active Ingredient

Use Categories Key:

C -	Terrestrial nonfood crop	Q -	Residential outdoor use	U -	Residential and public access pr
J -	Forestry use	R -	Agricultural premises and equipr	HH -	Occupational Use Conventional
K -	Residential	T -	Commercial, institutional and inc	II -	Residential Use Conventional C

Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

1 Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

2 Reserved for aquatic residential uses.

3 Required if a terrestrial species exhibits a 25 percent or greater detrimental effect in Tier 1.

4 Required for known phytotoxicants such as herbicides, desiccants, defoliants, and plant growth regulators.

5 Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

6 Reserved for aquatic residential uses.

7 Generally not required for granular formulations. May be requested on a case-by-case basis.

8 Required if a terrestrial species exhibits a 25 percent or greater detrimental effect in Tier 1.

9 Required for known phytotoxicants such as herbicides, desiccants, defoliants, and plant growth regulators.

United States Environmental Protection
Agency Washington, D.C. 20460

LIST OF ALL REGISTRANTS SENT THIS DATA CALL-IN NOTICE

Case # and Name: 0294,2,4-DP

Co. Nr.	Company Name	Agent For	Address	City & State	Zip
264	BAYER CROPSCIENCE LP		2 T.W. ALEXANDER DRIVE	RESEARCH TRIANGLE PARK	NC 27709
15440	A H MARKS & CO LTD	REGISTRATION AND REGULATORY SERVICES	PMB 239, 7474 CREEDMOOR ROAD	RALEIGH	NC 27613
70596	NUFARM BV	NUFRAM BV	PO Box 13439	RTP	NC 27709

United States Environmental Protection Agency Washington, D.C. 20460

DATA CALL-IN RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP Chemical # and Name 031403 Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-, compd. with N-methylmethanamine (1:1)	DD-MMM-YYYY GENERIC ID # GDCI-031403-NNNNN

4. EPA Product Registration	5. I wish to cancel this product registration voluntarily	6. Generic Data		7. Product Specific Data	
		6a. I am claiming a Generic Data Exemption because I obtain the active ingredient from the source EPA registration number listed below.	6b. I agree to satisfy Generic Data requirements as indicated on the attached form entitled "Requirements Status and Registrant's Response."	7a. My product is an MUP and I agree to satisfy the MUP requirements on the attached form entitled "Requirements Status and Registrant's Response."	7b. My product is an EUP and I agree to satisfy the EUP requirements on the attached form entitled "Requirements Status and Registrant's Response."
NNNNNN-NNNNN				N.A.	N.A.

8. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law.

Signature and Title of Company's Authorized Representative_____

9. Date

10. Name of Company

11. Phone Number

United States Environmental Protection Agency Washington, D.C. 20460

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address

SAMPLE COMPANY
NO STREET ADDRESS
NO CITY, XX 00000

2. Case # and Name

0294 2,4-DP
Chemical # and Name 031403
Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-, compd. with N-methylmethanamine (1:1)

3. Date and Type of DCI and Number

DD-MMM-YYYY
GENERIC
ID # GDCI-031403-NNNNN

4. Guideline Requirement Number	5. Study Title	PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
	Nontarget Plant Protection Data Requirements (Conventional Chemical)								
850.4225	Seedling emergence, Tier II (1 ,2 ,3 ,4)					C, HH, II, J, K, R, T, U	TEP	12	
850.4250	Vegetative vigor, Tier II (5 ,6 ,7 ,8 ,9)					C, HH, II, J, K, R, T, U	TEP	12	
	Product Chemistry Data Requirements (Conventional Chemical								
830.7050	UV/Visible absorption					C, HH, II, J, K, R, T, U	TGAI/PAI	8	

10. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law

Signature and Title of Company's Authorized Representative_____

11. Date

12. Name of Company

13. Phone Number

United States Environmental Protection
Agency Washington, D.C. 20460

FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

Case # and Name: 0294 2,4-DP

DCI Number: GDCI-031403-NNNNN

Key: TEP = Typical End Use Product [TEP]; TGAI/PAI = Technical Grade Active Ingredient, Pure Active Ingredient

Use Categories Key:

C -	Terrestrial nonfood crop	R -	Agricultural premises and equipr	HH -	Occupational Use Conventional
J -	Forestry use	T -	Commercial, institutional and inc	II -	Residential Use Conventional Cl
K -	Residential	U -	Residential and public access pr		

Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

1 Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

2 Reserved for aquatic residential uses.

3 Required if a terrestrial species exhibits a 25 percent or greater detrimental effect in Tier 1.

4 Required for known phytotoxicants such as herbicides, desiccants, defoliants, and plant growth regulators.

5 Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

6 Reserved for aquatic residential uses.

7 Generally not required for granular formulations. May be requested on a case-by-case basis.

8 Required if a terrestrial species exhibits a 25 percent or greater detrimental effect in Tier 1.

9 Required for known phytotoxicants such as herbicides, desiccants, defoliants, and plant growth regulators.

United States Environmental Protection
Agency Washington, D.C. 20460

LIST OF ALL REGISTRANTS SENT THIS DATA CALL-IN NOTICE

Case # and Name: 0294,2,4-DP

Co. Nr.	Company Name	Agent For	Address	City & State	Zip
228	NUFARM AMERICAS INC.		150 HARVESTER DRIVE, SUITE 200	BURR RIDGE	IL 60527
15440	A H MARKS & CO LTD	REGISTRATION AND REGULATORY SERVICES	PMB 239, 7474 CREEDMOOR ROAD	RALEIGH	NC 27613
70596	NUFARM BV	NUFRAM BV	PO Box 13439	RTP	NC 27709

United States Environmental Protection Agency Washington, D.C. 20460

DATA CALL-IN RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP Chemical # and Name 031465 2-Ethylhexyl (R)-2-(2,4-dichlorophenoxy)propionate	DD-MMM-YYYY GENERIC ID # GDCI-031465-NNNNN

4. EPA Product Registration	5. I wish to cancel this product registration voluntarily	6. Generic Data		7. Product Specific Data	
		6a. I am claiming a Generic Data Exemption because I obtain the active ingredient from the source EPA registration number listed below.	6b. I agree to satisfy Generic Data requirements as indicated on the attached form entitled "Requirements Status and Registrant's Response."	7a. My product is an MUP and I agree to satisfy the MUP requirements on the attached form entitled "Requirements Status and Registrant's Response."	7b. My product is an EUP and I agree to satisfy the EUP requirements on the attached form entitled "Requirements Status and Registrant's Response."
NNNNNN-NNNNN				N.A.	N.A.

8. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law.

Signature and Title of Company's Authorized Representative_____

9. Date

10. Name of Company

11. Phone Number

United States Environmental Protection Agency Washington, D.C. 20460

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address

SAMPLE COMPANY
NO STREET ADDRESS
NO CITY, XX 00000

2. Case # and Name

0294 2,4-DP
Chemical # and Name 031465
2-Ethylhexyl (R)-2-(2,4-dichlorophenoxy)propionate

3. Date and Type of DCI and Number

DD-MMM-YYYY
GENERIC
ID # GDCI-031465-NNNNN

4. Guideline Requirement Number	5. Study Title	PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
	Nontarget Plant Protection Data Requirements (Conventional Chemical)								
850.4225	Seedling emergence, Tier II (1 ,2 ,3 ,4)					A, C, HH, II, J, K, Q, R, T, U	TEP	12	
850.4250	Vegetative vigor, Tier II (5 ,6 ,7 ,8 ,9)					A, C, HH, II, J, K, Q, R, T, U	TEP	12	
	Product Chemistry Data Requirements (Conventional Chemical								
830.7050	UV/Visible absorption					A, C, HH, II, J, K, Q, R, T, U	TGAI/PAI	8	

10. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law

Signature and Title of Company's Authorized Representative_____

11. Date

12. Name of Company

13. Phone Number

United States Environmental Protection
Agency Washington, D.C. 20460

FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

Case # and Name: 0294 2,4-DP

DCI Number: GDCI-031465-NNNNN

Key: TEP = Typical End Use Product [TEP]; TGAI/PAI = Technical Grade Active Ingredient, Pure Active Ingredient

Use Categories Key:

A -	Terrestrial food crop	K -	Residential	T -	Commercial, institutional and inc	II -	Residential Use Conventional Cl
C -	Terrestrial nonfood crop	Q -	Residential outdoor use	U -	Residential and public access pr		
J -	Forestry use	R -	Agricultural premises and equipr	HH -	Occupational Use Conventional		

Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

1 Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

2 Reserved for aquatic residential uses.

3 Required if a terrestrial species exhibits a 25 percent or greater detrimental effect in Tier 1.

4 Required for known phytotoxicants such as herbicides, desiccants, defoliants, and plant growth regulators.

5 Not required for contained pesticide treatments such as bait boxes and pheromone traps unless adverse effects reports are received by the Agency.

6 Reserved for aquatic residential uses.

7 Generally not required for granular formulations. May be requested on a case-by-case basis.

8 Required if a terrestrial species exhibits a 25 percent or greater detrimental effect in Tier 1.

9 Required for known phytotoxicants such as herbicides, desiccants, defoliants, and plant growth regulators.

United States Environmental Protection
Agency Washington, D.C. 20460

LIST OF ALL REGISTRANTS SENT THIS DATA CALL-IN NOTICE

Case # and Name: 0294,2,4-DP

Co. Nr.	Company Name	Agent For	Address	City & State	Zip
15440	A H MARKS & CO LTD	REGISTRATION AND REGULATORY SERVICES	PMB 239, 7474 CREEDMOOR ROAD	RALEIGH	NC 27613
70596	NUFARM BV	NUFRAM BV	PO Box 13439	RTP	NC 27709

APPENDIX F. Product-specific Data Call-in (PDCI)

United States Environmental Protection Agency Washington, D.C. 20460

DATA CALL-IN RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP Chemical # and Name 031465 2-Ethylhexyl (R)-2-(2,4-dichlorophenoxy)propionate	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031465-NNNN

4. EPA Product Registration	5. I wish to cancel this product registration voluntarily	6. Generic Data		7. Product Specific Data	
		6a. I am claiming a Generic Data Exemption because I obtain the active ingredient from the source EPA registration number listed below.	6b. I agree to satisfy Generic Data requirements as indicated on the attached form entitled "Requirements Status and Registrant's Response."	7a. My product is an MUP and I agree to satisfy the MUP requirements on the attached form entitled "Requirements Status and Registrant's Response."	7b. My product is an EUP and I agree to satisfy the EUP requirements on the attached form entitled "Requirements Status and Registrant's Response."
NNNNNN-NNNNN		N.A.	N.A.		

F-1

8. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law.

Signature and Title of Company's Authorized Representative_____

9. Date

10. Name of Company

11. Phone Number

United States Environmental Protection Agency Washington, D.C. 20460

DATA CALL-IN RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP Chemical # and Name 031402 Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031402-NNNN

4. EPA Product Registration	5. I wish to cancel this product registration voluntarily	6. Generic Data		7. Product Specific Data	
		6a. I am claiming a Generic Data Exemption because I obtain the active ingredient from the source EPA registration number listed below.	6b. I agree to satisfy Generic Data requirements as indicated on the attached form entitled "Requirements Status and Registrant's Response."	7a. My product is an MUP and I agree to satisfy the MUP requirements on the attached form entitled "Requirements Status and Registrant's Response."	7b. My product is an EUP and I agree to satisfy the EUP requirements on the attached form entitled "Requirements Status and Registrant's Response."
NNNNNN-NNNNN		N.A.	N.A.		

8. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law.

Signature and Title of Company's Authorized Representative_____

9. Date

10. Name of Company

11. Phone Number

F-2

United States Environmental Protection Agency Washington, D.C. 20460

DATA CALL-IN RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP Chemical # and Name 031403 Propanoic acid, 2-(2,4-dichlorophenoxy)-, (R)-, compd. with N-methylmethanamine (1:1)	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031403-NNNN

4. EPA Product Registration	5. I wish to cancel this product registration voluntarily	6. Generic Data		7. Product Specific Data	
		6a. I am claiming a Generic Data Exemption because I obtain the active ingredient from the source EPA registration number listed below.	6b. I agree to satisfy Generic Data requirements as indicated on the attached form entitled "Requirements Status and Registrant's Response."	7a. My product is an MUP and I agree to satisfy the MUP requirements on the attached form entitled "Requirements Status and Registrant's Response."	7b. My product is an EUP and I agree to satisfy the EUP requirements on the attached form entitled "Requirements Status and Registrant's Response."
NNNNNN-NNNNN		N.A.	N.A.		

F-3

8. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law.

Signature and Title of Company's Authorized Representative_____

9. Date

10. Name of Company

11. Phone Number

United States Environmental Protection Agency Washington, D.C. 20460

OMB Approval 2070-0107
OMB Approval 2070-0057

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP EPA Reg. No. NNNNNN-NNNNN	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031465-NNNN

4. Guideline Requirement Number	5. Study Title		PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
	Product Chemistry Data Requirements (Conventional Chemical									
830.1550	Product Identity and composition	(1)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.1600	Description of materials used to produce the product	(2)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.1620	Description of production process	(3)					C, HH, II, J, K, Q, R, T, U	TGAI	8	
830.1650	Description of formulation process	(4)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.1670	Discussion of formation of impurities	(5)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.1700	Preliminary analysis	(6 ,7 ,8)					C, HH, II, J, K, Q, R, T, U	TGAI	8	
830.1750	Certified limits	(9 ,10)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.1800	Enforcement analytical method	(11)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.6302	Color	(12)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.6303	Physical state	(13)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.6304	Odor	(14)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	

10. Certification I certify that the statements made on this form and all attachments are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine, imprisonment or both under applicable law

Signature and Title of Company's Authorized Representative_____

11. Date

12. Name of Company

13. Phone Number

United States Environmental Protection Agency Washington, D.C. 20460

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP EPA Reg. No. NNNNNN-NNNNN	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031465-NNNN

4. Guideline Requirement Number	5. Study Title	PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
830.6313	Stability to sunlight, normal and elevated temperatures metals, and metal ions (15 ,16)					C, HH, II, J, K, Q, R, T, U	TGAI	8	
830.6314	Oxidizing or reducing action (17)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.6315	Flammability (18)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.6316	Explodability (19)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.6317	Storage stability of product (20)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.6319	Miscibility (21)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.6320	Corrosion characteristics (22)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.6321	Dielectric breakdown voltage (23)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	
830.7000	pH of water solutions or suspensions (24 ,25)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.7050	UV/Visible absorption					C, HH, II, J, K, Q, R, T, U	TGAI/PAI	8	
830.7100	Viscosity (26)					C, HH, II, J, K, Q, R, T, U	MP/EP	8	

Initial to indicate certification as to information on this page (full text of certification is on page one).

Date

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United States Environmental Protection Agency Washington, D.C. 20460

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

OMB Approval 2070-0107
OMB Approval 2070-0057

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP EPA Reg. No. NNNNNN-NNNNN	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031465-NNNN

4. Guideline Requirement Number	5. Study Title		PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
830.7200	Melting point/melting range	(27 ,28)					C, HH, II, J, K, Q, R, T, U	TGAI	8	
830.7220	Boiling point/boiling range	(29 ,30)					C, HH, II, J, K, Q, R, T, U	TGAI	8	
830.7300	Density/relative density	(31 ,32)					C, HH, II, J, K, Q, R, T, U	TGAI/MP/EP	8	
830.7370	Dissociation constant in water	(33 ,34)					C, HH, II, J, K, Q, R, T, U	TGAI or PAI	8	
830.7550	Partition coefficient (n-octanol/water), shake flask method	(35)					C, HH, II, J, K, Q, R, T, U	TGAI/PAI	8	
830.7570	Partition coefficient (n-octanol/water), estimation by liquid chromatography	(36)					C, HH, II, J, K, Q, R, T, U	TGAI/PAI	8	
830.7840	Water solubility: Column elution method, shake flask method	(37)					C, HH, II, J, K, Q, R, T, U	TGAI or PAI	8	
830.7860	Water solubility, generator column method	(38)					C, HH, II, J, K, Q, R, T, U	TGAI or PAI	8	
830.7950	Vapor pressure	(39 ,40)					C, HH, II, J, K, Q, R, T, U	TGAI or PAI	8	
	Toxicology Data Requirements (Conventional Chemical)									
870.1100	Acute Oral Toxicity	(41)					C, HH, II, J, K, Q, R, T, U	TGAI,EP,dilute EP?	8	
870.1200	Acute dermal toxicity	(42 ,43)					C, HH, II, J, K, Q, R, T, U	TGAI,EP,dilute EP?	8	

Initial to indicate certification as to information on this page (full text of certification is on page one).						Date		

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United States Environmental Protection Agency Washington, D.C. 20460

OMB Approval 2070-0107
OMB Approval 2070-0057

REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE

INSTRUCTIONS: Please type or print in ink. Please read carefully the attached instructions and supply the information requested on this form. Use additional sheet(s) if necessary.

1. Company Name and Address	2. Case # and Name	3. Date and Type of DCI and Number
SAMPLE COMPANY NO STREET ADDRESS NO CITY, XX 00000	0294 2,4-DP EPA Reg. No. NNNNNN-NNNNN	DD-MMM-YYYY PRODUCT SPECIFIC ID # PDCI-031465-NNNN

4. Guideline Requirement Number	5. Study Title		PROTOCOL	Progress Reports 1	2	3	6. Use Pattern	7. Test Substance	8. Time Frame (Months)	9. Registrant Response
870.1300	Acute inhalation toxicity	(44)					C, HH, II, J, K, Q, R, T, U	TGAI & EP	8	
870.2400	Acute eye irritation	(45)					C, HH, II, J, K, Q, R, T, U	TGAI & EP	8	
870.2500	Acute dermal irritation	(46 ,47)					C, HH, II, J, K, Q, R, T, U	TGAI & EP	8	
870.2600	Skin sensitization	(48 ,49)					C, HH, II, J, K, Q, R, T, U	TGAI & EP	8	

Initial to indicate certification as to information on this page (full text of certification is on page one).						Date		

United States Environmental Protection
Agency Washington, D.C. 20460

FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

Case # and Name: 0294 2,4-DP

DCI Number: PDCI-031465-NNNN

Key: MP/EP = Manufacturing-Use Product, Pure Active Ingredient; TGAI = Technical Grade Active Ingredient [TGAI]; TGAI & EP = Technical Grade of the Active Ingredient and End-Use Product; TGAI or P. Technical Grade of the Active Ingredient or Pure Active Ingredient; TGAI,EP,dilute EP? = Technical Grade of the Active Ingredient, End Use Product, and possibly diluted End Use Product; TGAI/MP/E Manufacturing-Use Product, Pure Active Ingredient and Technical Grade Active Ingredient; TGAI/PAI = Technical Grade Active Ingredient, Pure Active Ingredient

Use Categories Key:

C -	Terrestrial nonfood crop	Q -	Residential outdoor use	U -	Residential and public access pr
J -	Forestry use	R -	Agricultural premises and equipr	HH -	Occupational Use Conventional
K -	Residential	T -	Commercial, institutional and inc	II -	Residential Use Conventional C

Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

1 Data must be provided in accordance with the "Product Composition" Section.(158.155)

2 Data must be provided in accordance with the "Description of Materials used to Produce the Product" Section.(158.160)

3 Data must be provided in accordance with the "Description of Production Process" Section.(158.162)

4 Data must be provided in accordance with the "Description of Formulation Process" Section.(158.165)

5 Data must be provided in accordance with the "Description of Formation of Impurities" Section(158.167)

6 Data must be provided in accordance with the "Preliminary Analysis" Section.(158.170)

7 Required for TGAIs and products produced by an integrated system.

8 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

9 Data must be provided in accordance with the "Certified Limits" Section(158.175)

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FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

Case # and Name: 0294 2,4-DP

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Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

10 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

11 Data must be provided in accordance with the "Enforcement Analytical Method" Section.(158.180)

12 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

13 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

14 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

15 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

16 Data on the stability to metals and metal ions is required only if the active ingredient is expected to come in contact with either material during storage.

17 Required if the product contains an oxidizing or reducing agent

United States Environmental Protection
Agency Washington, D.C. 20460

FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

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DCI Number: PDCI-031465-NNNN

Key: MP/EP = Manufacturing-Use Product, Pure Active Ingredient; TGAI = Technical Grade Active Ingredient [TGAI]; TGAI & EP = Technical Grade of the Active Ingredient and End-Use Product; TGAI or P. Technical Grade of the Active Ingredient or Pure Active Ingredient; TGAI,EP,dilute EP? = Technical Grade of the Active Ingredient, End Use Product, and possibly diluted End Use Product; TGAI/MP/E Manufacturing-Use Product, Pure Active Ingredient and Technical Grade Active Ingredient; TGAI/PAI = Technical Grade Active Ingredient, Pure Active Ingredient

Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

18 Required when the product contains combustible liquids.

19 Required when the product is potentially explosive.

20 Please see attached "Additional Information and Requirements Pertaining to Storage Stability (OPPTS 830.6317) and Corrosion Characteristics (OPPTS 830.6320) Data Requirements of the Pro Specific Data Call-Ins issued under the Reregistration Eligibility Decision (RED)/Interim Reregistration Eligibility Decision (IRED) Documents."

21 Required if the product is an emulsifiable liquid and is to be diluted with petroleum solvents.

22 Please see attached "Additional Information and Requirements Pertaining to Storage Stability (OPPTS 830.6317) and Corrosion Characteristics (OPPTS 830.6320) Data Requirements of the Pro Specific Data Call-Ins issued under the Reregistration Eligibility Decision (RED)/Interim Reregistration Eligibility Decision (IRED) Documents."

23 Required if the end-use product is a liquid and is to be used around electrical equipment.

24 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

25 Required if the product is dispersible with water.

26 Required if the product is a liquid.

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FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

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Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

27 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

28 Required when the TGAI is solid at room temperature.

29 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

30 Required if the TGAI is liquid at room temperature.

31 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

32 True density or specific density are required for all test substances. Data on bulk density is required for MPs that are solid at room temperature.

33 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

34 Required when the test substance contains an acid or base functionality (organic or inorganic) or an alcoholic functionality (organic).

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FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

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Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

35 Required if the TGAI or PAI is organic and non-polar.

36 Required if the TGAI or PAI is organic and non-polar.

37 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

38 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

39 If the TGAI cannot be isolated, data are required on the practical equivalent of the TGAI (i.e., if the active ingredient is either an acid, base or ionic form, and it is formulated into salts or esters, the concentration of the active ingredient in these products must be expressed in acid equivalent or active equivalent).

40 Not required for salts.

41 Not required if test material is a gas or a highly volatile liquid.

42 Not required if test material is a gas or a highly volatile liquid.

43 Not required if test material is corrosive to skin or has a pH of less than 2 or greater than 11.5.

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FOOTNOTES AND KEY DEFINITIONS FOR GUIDELINE REQUIREMENTS

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Key: MP/EP = Manufacturing-Use Product, Pure Active Ingredient; TGAI = Technical Grade Active Ingredient [TGAI]; TGAI & EP = Technical Grade of the Active Ingredient and End-Use Product; TGAI or P. Technical Grade of the Active Ingredient or Pure Active Ingredient; TGAI,EP,dilute EP? = Technical Grade of the Active Ingredient, End Use Product, and possibly diluted End Use Product; TGAI/MP/E Manufacturing-Use Product, Pure Active Ingredient and Technical Grade Active Ingredient; TGAI/PAI = Technical Grade Active Ingredient, Pure Active Ingredient

Footnotes: [The following notes are referenced in column two (5. Study File) of the REQUIREMENTS STATUS AND REGISTRANT'S RESPONSE form.]

44 Required if the product consists of, or under conditions of use will result in, a respirable material (e.g., gas, vapor, aerosol, or particulate).

45 Not required if test material is corrosive to skin or has a pH of less than 2 or greater than 11.5.

46 Not required if test material is a gas or a highly volatile liquid.

47 Not required if test material is corrosive to skin or has a pH of less than 2 or greater than 11.5.

48 Not required if test material is corrosive to skin or has a pH of less than 2 or greater than 11.5.

49 Required if repeated dermal exposure is likely to occur under conditions of use.

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Agency Washington, D.C. 20460

LIST OF ALL REGISTRANTS SENT THIS DATA CALL-IN NOTICE

Case # and Name: 0294,2,4-DP

Co. Nr.	Company Name	Agent For	Address	City & State	Zip
228	NUFARM AMERICAS INC.		150 HARVESTER DRIVE, SUITE 200	BURR RIDGE	IL 60527
2217	PBI/GORDON CORP		PO Box 014090 1217 WEST 12TH STREET	KANSAS CITY	MO 641010090
9688	CHEMSICO		PO Box 142642	ST LOUIS	MO 631140642
15440	A H MARKS & CO LTD	REGISTRATION AND REGULATORY SERVICES	PMB 239, 7474 CREEDMOOR ROAD	RALEIGH	NC 27613
70596	NUFARM BV	NUFRAM BV	PO Box 13439	RTP	NC 27709

United States Environmental Protection
Agency Washington, D.C. 20460

LIST OF ALL REGISTRANTS SENT THIS DATA CALL-IN NOTICE

Case # and Name: 0294,2,4-DP

Co. Nr.	Company Name	Agent For	Address	City & State	Zip
264	BAYER CROPSCIENCE LP		2 T.W. ALEXANDER DRIVE	RESEARCH TRIANGLE PARK	NC 27709
15440	A H MARKS & CO LTD	REGISTRATION AND REGULATORY SERVICES	PMB 239, 7474 CREEDMOOR ROAD	RALEIGH	NC 27613
70596	NUFARM BV	NUFRAM BV	PO Box 13439	RTP	NC 27709

United States Environmental Protection
Agency Washington, D.C. 20460

LIST OF ALL REGISTRANTS SENT THIS DATA CALL-IN NOTICE

Case # and Name: 0294,2,4-DP

Co. Nr.	Company Name	Agent For	Address	City & State	Zip
228	NUFARM AMERICAS INC.		150 HARVESTER DRIVE, SUITE 200	BURR RIDGE	IL 60527
239	THE ORTHO BUSINESS GROUP		PO Box 190	MARYSVILLE	OH 43040
2217	PBI/GORDON CORP		PO Box 014090 1217 WEST 12TH STREET	KANSAS CITY	MO 641010090
8378	KNOX FERTILIZER CO INC	TOTAL TURF CONSULTING LLC	300 W. FIFTH ST., #411	CHARLOTTE	NC 28202
9688	CHEMSICO		PO Box 142642	ST LOUIS	MO 631140642
10088	ATHEA LABORATORIES INC		PO Box 240014	MILWAUKEE	WI 53224
15440	A H MARKS & CO LTD	REGISTRATION AND REGULATORY SERVICES	PMB 239, 7474 CREEDMOOR ROAD	RALEIGH	NC 27613
32802	HOWARD JOHNSON'S ENTERPRISES INC		700 W. VIRGINIA ST STE 222	MILWAUKEE	WI 532041548
34704	LOVELAND PRODUCTS, INC.		PO Box 1286	GREELEY	CO 806321286
70596	NUFARM BV	NUFRAM BV	PO Box 13439	RTP	NC 27709

APPENDIX G. EPA's Batching of 2,4-DP-p Products for Meeting Acute Toxicity Data Requirements for Reregistration

In an effort to reduce the time, resources and number of animals needed to fulfill the acute toxicity data requirements for reregistration of products containing 2,4-DP-p as the active ingredient, the Agency has batched products which can be considered similar for purposes of acute toxicity. Factors considered in the sorting process include each product's active and inert ingredients (identity, percent composition and biological activity), type of formulation (e.g., emulsifiable concentrate, aerosol, wettable powder, granular, etc.), and labeling (e.g., signal word, use classification, precautionary labeling, etc.). Note that the Agency is not describing batched products as "substantially similar" since some products within a batch may not be considered chemically similar or have identical use patterns.

Registrants of products within a batch may choose to cooperatively generate, submit or cite a single battery of six acute toxicological studies to represent all the products within that batch. It is the registrants' option to participate in the process with all other registrants, only some of the other registrants, or only their own products within a batch, or to generate all the required acute toxicological studies for each of their own products. If a registrant chooses to generate the data for a batch, he/she must use one of the products within the batch as the test material. If a registrant chooses to rely upon previously submitted acute toxicity data, he/she may do so provided that the data base is complete and valid by today's standards (see acceptance criteria attached), the formulation tested is considered by EPA to be similar for acute toxicity, and the formulation has not been significantly altered since submission and acceptance of the acute toxicity data. Regardless of whether new data is generated or existing data is referenced, registrants must clearly identify the test material by EPA Registration Number. If more than one confidential statement of formula (CSF) exists for a product, the registrant must indicate the formulation actually tested by identifying the corresponding CSF.

Because of the extensive number of products to consider in this batching process, the batching report will be made available at a later date and posted on-line in the Public Docket.